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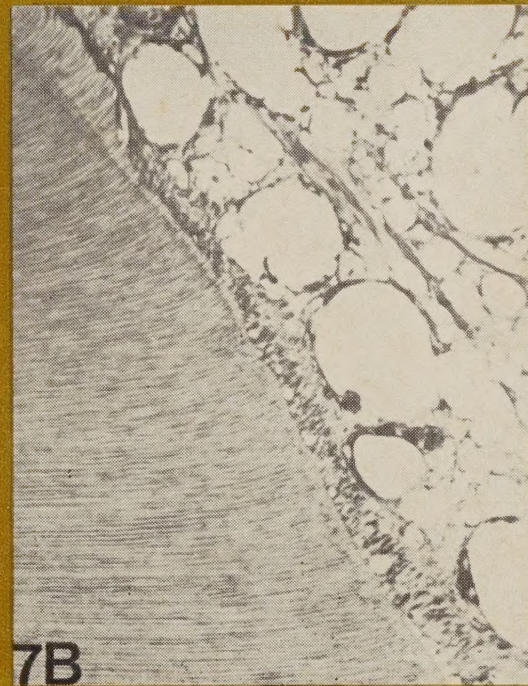
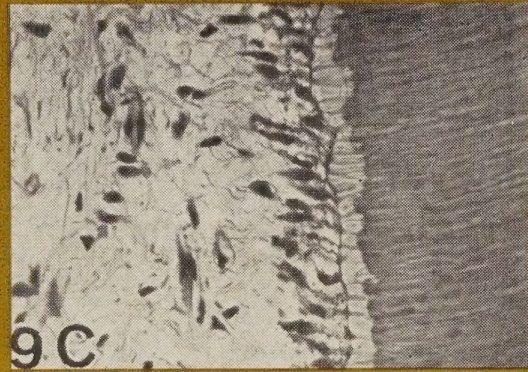
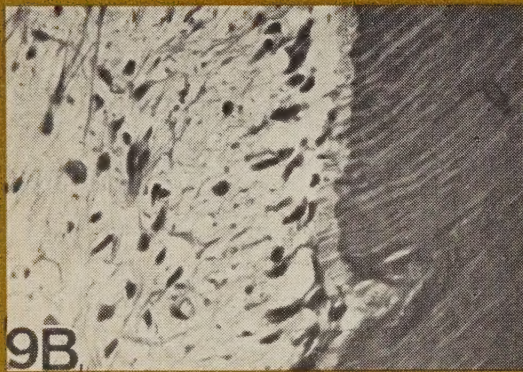
# JOURNAL

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V. 38  
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of the Canadian Dental Association  
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Jan 1972/Volume 38/No 1



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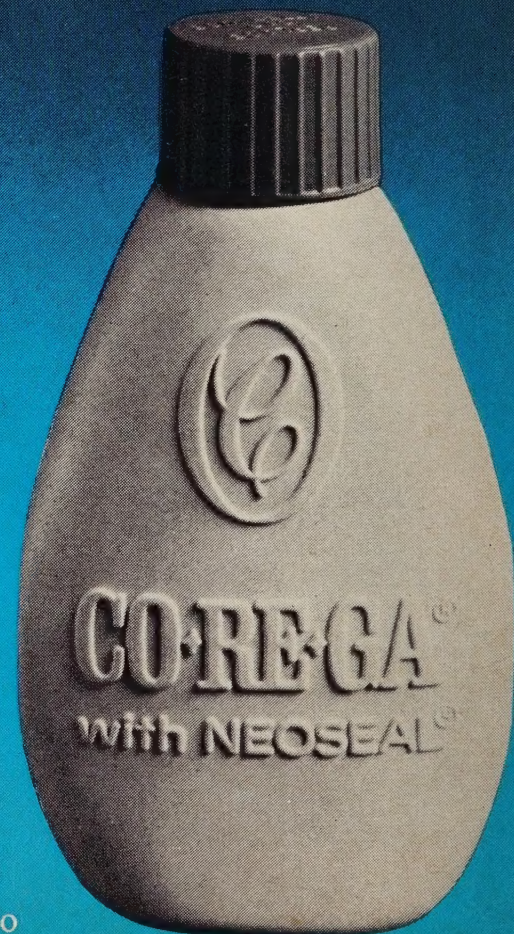
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# JOURNAL

of the Canadian Dental Association  
de l'Association Dentaire Canadienne

Editor/F. H. Compton, DDS

Rédacteur adjoint/M. P. Tenenbaum, DDS

Managing Director/W. G. McIntosh, DDS

Jan. 1972 / Volume 38 / No 1-121

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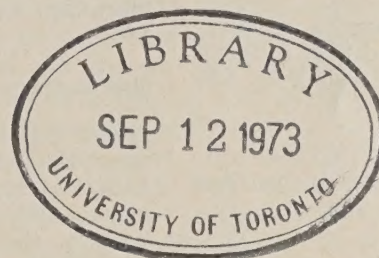
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# Announcements/Avis

Information about other meetings or courses, including American continuing education courses, may be obtained by writing to CDA headquarters.

## Canadian Dental Association

1972 Montreal, June 4-7  
1973 Vancouver, Sept 30-Oct 3  
1974 Windsor, Ont, Oct 2-5

## Fédération Dentaire Internationale

1972 Mexico City, Oct 22-27  
1973 Sydney, Australia, July 15-20

## Continuing Education

### Anaesthesia and Pain Control

*Western Ontario.* Intravenous premedication. A. G. Parnell and I. D. F. Schofield. Apr 14, 1972. Regis limit 25. \$40

### Dental Materials

*Alberta.* Dental Materials. D. J. Gau. Apr 8, 1972. Regis unlimited. \$35

### Endodontics

*McGill.* Current concepts in endodontics. John Ingle, I. B. Bender, S. Seltzer, A. Frank, Paul Vanek, J. Freedland, Gilbert Crussol, J. Gattuso and H. Gerstein. Apr 10-12, 1972. Regis unlimited. \$175  
*Toronto.* Endodontics. J. M. Phillips. Feb 9-11, 1972. Regis limit 10. \$90

### Occlusion

*Dalhousie.* Occlusion — key to better dentures. K. M. Kerr, D. V. Chaytor and A. H. Ervin. Mar 15-16, 1972. Regis limit 12. \$50  
*Dalhousie.* Occlusion in the natural dentition. E. J. Hannigan. Nov 3-4, 1972. Regis unlimited. \$50  
*Toronto.* Occlusion in restorative dentistry. J. H. Hibberd. May 2-5, 1972. Regis limit 10. \$100  
*Western Ontario.* Occlusal correction of the natural dentition. D. S. Moore, Emo Rajczak and S. J. Chiappone. May 8-12, 1972. Regis limit 10. \$300

## Operative Dentistry

*Alberta.* Recent advances in operative dentistry. G. H. Gibb. Mar 11, 1972. Regis unlimited. \$35

### Operative Dentistry/Amalgam

*British Columbia.* The use of amalgam in restorative dentistry — lectures. F. L. Jacobson. Feb 19, 1972. Regis unlimited. \$30. Dental assistants \$5  
*British Columbia.* The use of amalgam in restorative dentistry—lectures and clinical. F. L. Jacobson. Feb 19-21, 1972. Regis limited. \$125

### Operative Dentistry/Gold Restorations

*British Columbia.* Gold foil for the general practitioner. L. W. Beamish. Mar 3-4, 1972. Regis limited. \$75  
*British Columbia.* Clinical procedures for gold inlays—lectures. K. E. Murchie. Mar 24, 1972. Regis unlimited. \$30  
*British Columbia.* Clinical procedures for gold inlays—lectures and practical. K. E. Murchie. Mar 24-27, 1972. Regis limited. \$175  
*Toronto.* Clinical procedures for quadrant gold restorations. J. H. Hibberd. May 23-26, 1972. Regis limit 10. \$100

### Oral Pathology

*British Columbia.* Identification of soft tissue lesions. R. W. D. Myall. Feb 7, 1972. Regis limited. Dental hygienists \$20  
*Toronto.* Diagnostic pathology. J. H. P. Main. Jan 24-25, 1972. Regis limit 10. \$60

### Oral Surgery

*British Columbia.* Exodontia, alveolotomy and immediate dentures. D. T. Zack and faculty. Feb 14, 1972. Regis limited. \$30  
*Toronto.* Oral surgery. P. T. Smylski. Mar 20-24, 1972. Regis limit 12. \$100

### Orthodontics

*Alberta.* Interceptive orthodontics for the general practitioner. R. D. Haryett. May 1-5, 1972. Regis unlimited. \$150  
*Toronto.* Prerequisite orthodontics for the general practitioner. R. O. Fisk. Apr 10-14, 1972. Regis limit 25. \$150  
*Toronto.* Advanced orthodontic diagnosis emphasizing cephalometric radiography. B. Hemrend. May 8-9, 1972. Regis limit 5. \$80  
*Toronto.* The activator in pre-orthodontic guidance and corrective treatment procedures. D. G. Woodside. May 29-30, 1972. Regis limit 20. \$80  
*Toronto.* Orthodontic technical instructions for the general practitioner. D. G. Woodside. June 5-6, 1972. Regis limit 10. \$80  
*Western Ontario.* Removable orthodontic appliances in general practice. W. S. Hunter, A. W. Eastwood and G. C. Frey. Mar 24, 1972. Regis limit 20. \$50

## Paedodontics

*British Columbia.* Restorative dentistry for children. P. Starkey. Mar 10-11, 1972. Regis limited. \$50  
*Toronto.* Paedodontics. K. W. Davey. Apr 5-7, 1972. Regis limit 20. \$100  
*Western Ontario.* Treatment of fractured incisors in the primary and mixed dentition. W. H. Feasby, D. H. Skinner and G. Z. Wright. Feb 24, 1972. Regis limit 25. \$40. \$70 includes the two courses on Feb 24 and 25  
*Western Ontario.* Pulp therapy for the primary and immature permanent dentition. W. H. Feasby, D. H. Skinner and G. Z. Wright. Feb 25, 1972. Regis limit 25. \$40. \$70 includes the two courses on Feb 24 and 25

## Periodontics

*British Columbia Periodontics.* N. Basaraba and G. R. Thordarson. Jan 15-16, 1972. Regis limited. \$50 for dentists; \$15 for dental hygienists.  
*Dalhousie.* Rationale for periodontal therapy. D. G. Pentz, E. J. Hannigan and N. H. Andrews. Feb 18-19, 1972. Regis unlimited. \$50 for dentists; \$25 for hygienists; \$15 for hygienist with dentist  
*Toronto.* Periodontics. J. E. Speck. Mar 8, 15, 22, 29 and Apr 26, 1972. Regis limit 12. \$100

## Preventive Dentistry

*McGill.* The new look in preventive dentistry. R. F. Barkley. Jan 14-15, 1972. Regis unlimited. \$75  
*Toronto.* Preventive dentistry. R. C. Burgess. Jan 12, 19, 26 and Feb 2, 9, 1972. Regis limit 20. \$50 for dentists; \$20 for dental assistants; \$20 for dental hygienists

## Prosthodontics/Complete

*British Columbia.* Practical full denture construction. C. R. Hallman. Jan 28-29, 1972. Regis limited. \$50  
*Western Ontario.* Removable prostheses; complete dentures. J. E. Ryan. Mar 10, 1972. Regis limit 12. \$50

## Prosthodontics/Partial

*Dalhousie.* Fixed and removable partial dentures. George Mumford. Jan 17-18, 1972. Regis unlimited. \$50  
*Toronto.* Prosthodontics — removable partial dentures. G. A. Zarb. Apr 3-5, 1972. Regis limit 10. \$100

## Prosthodontics/Miscellaneous

*Western Ontario.* Fixed prostheses; a current approach to the problems. W. R. Teteruck and W. J. Walker. Jan 14, 1972. Regis limit 12. \$50

## Radiology

*British Columbia.* Dental radiology. F.W. Musaph. Jan 21-22, 1972. Regis limited.  
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## Fluoridation and environment

Fluoridation was rejected in Calgary for the fourth time last October, and by the biggest margin since the question was first put to the citizens in 1957. Columnist William Gold regards this latest defeat as an important index of social change. According to his analysis, the measure was turned down by a growing band of men and women who profess concern with questions of ecology but would not otherwise identify with the old-line strident anti-fluoridationists. He attributes this phenomenon to a succession of reports about mercury and DDT in animal tissues, cyclamates in soft drinks, phosphates in detergents and countless other examples of environmental contamination by man-made substances. As a consequence there is a growing reluctance to accept modification of anything the public regards as "natural," regardless of the worthiness of the motive.

Gold equates the hostility to fluoridation with a growing technological negativism born of confusion. Today's instant communication engenders instant confusion rather than enlightenment; information and misinformation are almost impossible to differentiate. Given this confusion, it is easy for the ordinary man to invoke a plague on all houses. This means opposing at every turn any measure to add any substance to any other substance.

The response, says Gold, is valid up to a point. The individual feels he is playing it safe. A substance unadded is a substance non-poisonous, after all. Moreover, there flows from such rejection a current socially acceptable feeling of having done something "good" for all mankind in this polluted world.

But the response is also invalid when unaccompanied by rational thought and mature judgement. Ecology, as Gold points out, is the totality of our existence, and value judgements concerning its components are among the most difficult the ordinary layman can aspire to make. The broadsword technique of rejection for rejection's sake is therefore inappropriate to so finely balanced a mechanism as life itself.

In the end, blind rejection of man's talent for innovative improvement of his condition by so-called artificial means is no better than heedless contamination of his environment. Indeed, in the trenchant words of William Gold, "it is a rejection of man himself."

## Another friend departs

The retirement of Marcel P. Tenenbaum from the associate editorial chair of the *Journal of the Canadian Dental Association* will be regretted by innumerable friends across this country. Doctor Tenenbaum was the fifth incumbent of this position and his services to the Journal deserve our gratitude.

When he accepted the editorial appointment exactly three years ago, the Association gained an energetic collaborator who brought to his work in the Journal not only the breadth and detail of his professional knowledge but also a lively originality and a restless search for improvement. Thus, between 1969 and 1972, readers of the Journal found new features introduced, changes in style and format, and a steadily improving quality that mirrors the advancement of dentistry in Canada. In various degrees all have benefitted from the imprint of Marcel Tenenbaum's hand.

Above all, we shall miss the blending of pragmatism and vigour that characterized his editorials (take dental hygienists. . . . "Quebec does not train any yet, but we've managed to attract a few from outside the province. Most speak little or no French. But surely it is better to have English-speaking hygienists than none at all! Besides, once they settle in a French milieu, most professionals acquire a working knowledge of French, especially if their work entails direct contact with the public. After all, no sane practitioner would want to isolate himself from 80 per cent of our population!")

If Marcel Tenenbaum had done nothing else for his profession the 36 Journal issues of the past three years would serve as testimony to his achievements. But that is far from being the case, and nowhere is the range of his interest and the extent of his energy better illustrated than in his many contributions to professional organizations in Quebec.

His resignation from the editorship cannot come as too much of a surprise to those who have seen the weight and variety of responsibilities he shoulders. On the other hand, our regrets are tempered by the certain realization that, in relinquishing this responsibility, Marcel Tenenbaum will not be doing less for his profession rather than finding time to do even more.



## Fluoration et environnement

## Départ d'un autre ami

La fluoration a été rejetée à Calgary pour la quatrième fois en octobre dernier, et cette fois la masse des opposants a été la plus considérable depuis que cette question a été portée pour la première fois devant les citoyens en 1957. L'éditorialiste William Gold considère que cette dernière défaite est révélatrice d'un profond changement social. Selon son analyse, la proposition aurait été défaite par un groupe grandissant d'hommes et de femmes qui se sentent impliqués dans les questions d'écologie, mais qui d'autre part se dissocieraient de la ligue un peu dépassée des anti-fluorisationnistes. Il attribue ce phénomène à une succession de rapports sur le mercure et le DDT dans les tissus animaux, les cyclamates dans les boissons gazeuses, les phosphates dans les détergents et autres exemples nombreux de la contamination de l'environnement par des substances synthétiques. Ces rapports entraînent un refus de plus en plus catégorique de la part de la population en ce qui concerne toute modification susceptible de changer le milieu "naturel", sans égard au bien-fondé de la proposition et du changement qu'elle offre.

Gold interprète cette hostilité du public envers la fluoration comme un négativisme technologique grandissant qui serait le résultat d'une certaine confusion née dans l'esprit des gens. Les communications instantanées d'aujourd'hui engendrent souvent la confusion instantanée plutôt que d'apporter des éclaircissements; il est presque impossible de distinguer si les renseignements reçus sont exacts ou inexacts. A partir de cette confusion, il est facile à l'homme de la rue de déclarer que de tout côté plus rien en va, et cela signifie dans les faits qu'il s'oppose à toute mesure lorsqu'il s'agit d'ajouter une substance à toute autre substance.

Cette réponse, d'ajouter Gold, est valable mais seulement jusqu'à un certain point. L'individu pense qu'il opte pour la sécurité. Une substance qui n'est pas ajoutée devient donc, par le fait même, inoffensive. De plus il se dégage de ces refus (de la fluoration par exemple) un sentiment socialement acceptable et très à la mode, sentiment que l'on a fait quelque chose de "bien" pour l'humanité dans ce monde pollué.

(Suite à la page 27)

Le départ de Marcel P. Tenenbaum de son poste de rédacteur adjoint de l'Association Dentaire Canadienne sera regretté par une foule d'amis qu'il avait à travers le Canada. Le Dr Tenenbaum était le cinquième titulaire de ce poste et les services qu'il a rendus au Journal méritent notre gratitude.

Lorsqu'il décida d'assumer cette fonction de rédacteur adjoint, il y a exactement trois ans, l'Association s'enrichissait d'un collaborateur énergique qui apportait à son travail dans ce journal non seulement des connaissances professionnelles étendues et précises, mais aussi une originalité certaine et une recherche incessante de l'amélioration. Ainsi de 1969 à 1972 les lecteurs du Journal ont pu constater certains changements, dans le style et le format, et une qualité sans cesse grandissante qui reflète bien les progrès de l'art dentaire au Canada. A des degrés divers, tous ont profité de la marque qu'à laissée Marcel Tenenbaum.

Ce que nous regretterons le plus c'est ce mélange de pragmatisme et de vigueur qui animaient ses éditoriaux. Prenons l'exemple des hygiénistes dentaires. "Le Québec n'en forme pas encore et ne sera probablement pas capable de le faire avant plusieurs années. Entretemps, nous avons pu faire venir un petit nombre d'hygiénistes dentaires qui sont originaires du dehors du Québec. Elles sont presque exclusivement anglophones. Il faut se rendre à l'évidence qu'il est préférable pour le bien-être de la population d'avoir des hygiénistes dentaires anglophones que de ne pas en avoir du tout! Une fois installés dans un milieu francophone, il est néanmoins normal que ces professionnels cherchent à acquérir une connaissance d'usage du français surtout s'ils ont des contacts directs avec le public. Il est quand même illogique pour un praticien de vouloir s'isoler de 80 p.c. de la population".

Si Marcel Tenenbaum n'avait rien fait d'autre pour sa profession, les 36 exemplaires du Journal pourraient bien être le témoignage de ses réalisations. Mais ceci est loin d'être le cas, et l'on ne pourrait mieux voir la profondeur de son intérêt et l'étendue de son énergie que dans l'aide qu'il a apportée aux différents organismes professionnels du Québec.

Son départ du poste de rédacteur adjoint ne sur-

(Suite à la page 27)



*The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.*

*Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association Dentaire Canadienne. Vous êtes invités à participer à cette section du Journal.*

### Ketamine anaesthesia

I would like to make the following comments on the article "An Evaluation of Ketamine (Ketalar, C1-581) for Out-patient Paediatric Dentistry" which appeared in the August issue.

According to Doctors McFarlane and Spoerel, one disadvantage of conventional anaesthesia is induction by means of the intravenous route; yet they recommend intravenous administration of ketamine. Mention is also made of patient airway without support, yet Taylor and Towey (in the *British Medical Journal* June 19, 1971, p 688) have shown that there is depression of laryngeal reflexes during ketamine anaesthesia. All patients in a controlled group of conscious volunteers had a competent laryngeal reflex, whereas all of the seven patients anaesthetized with ketamine in the recommended dosage aspirated a contrast medium which was demonstrated radiographically. Although protective reflexes are also depressed in patients under conventional anaesthesia, one knows this and takes appropriate

prophylactic steps. So, to say that the laryngeal reflexes are normal under ketamine anaesthesia is incorrect and makes people think that ketamine can be administered on a full stomach — either as a result of pre-operative ingestion of food and liquids, or because the patient has swallowed blood and saliva during the operation.

The authors point out that there is no respiratory depression, although breathing may be irregular, and that the patients remain well oxygenated. This seems to be a clinical impression unsupported by adequate blood gas studies.

The authors state that hallucinations occasionally occur with young patients. A lesser incidence of hallucinations or other bad experiences in children does not necessarily mean that these episodes do not occur. It may simply be that the children are unable to describe them. Some bad experiences at a younger age can have lifelong effects on a child as well as being very disturbing to the parents. It is well known that many psychiatric disorders in adults or older children stem from early childhood.

Ketamine anaesthesia, without proper precautions (such as those taken during conventional anaesthetic techniques) and administered by persons unskilled in the administration of good anaesthesia, can be dangerous. The disadvantages, in addition to those mentioned in the article, include a higher frequency of postoperative nausea and vomiting, disturbed recovery period, muscle rigidity, tachycardia and increased blood pressure.

The only indications for ketamine anaesthesia are:

1. Where conventional anaesthesia is contra-indicated. However, the relative contra-indications to conventional anaesthesia are debatable. There is really no absolute contra-indication to a conventional anaesthetic. It is a matter of proper evaluation and preparation of the patient and the use of suitable proven agents which are administered appropriately and skilfully with adequate monitoring of the patient.

2. Where intravenous induction is not possible. Intramuscular administration

of ketamine may be appropriate in such cases.

The authors conclude that ketamine has been shown to be a satisfactory and efficient anaesthetic agent for outpatient dental treatment which is superior to conventional anaesthetic techniques. This claim has not been proven. They admit that the long-term effects of this drug are not yet known. These must be evaluated before ketamine can be accepted as a satisfactory anaesthetic agent.

*K. C. Bentley, MD, DDS  
Dental Clinic  
Montreal General Hospital  
Montreal, Que*

*Doctor Bentley's letter was referred to the authors who replied as follows:*

Doctor Bentley has read more into our paper than we have said. Neither have we considered the intravenous route disadvantageous nor did we claim that laryngeal reflexes are normal under ketamine anaesthesia or that ketamine is absolutely safe for the patient with a full stomach. However, in children anaesthetized with ketamine there is, in contrast to other anaesthetic agents, a retention of laryngeal reflexes. This can be observed when the larynx is exposed with a laryngoscope. Although the swallowing reflex is retained, earlier publications from our Centre have shown the gag reflex is depressed and that material introduced into the pharynx will be retained there longer. The observations by Taylor and Towey which are quoted by Doctor Bentley (*Brit Med J* June 19, 1971, p 688) can be explained on the basis of retention of dye in the pharynx and do not necessarily imply impaired laryngeal reflexes.

Doctor Bentley's explanation of the low incidence of hallucinations in children must also be questioned; children between the ages of six and 12 are quite capable of reporting their dreams in very vivid descriptions. We are not aware of any lasting disturbances from ketamine in our patients nor of reports of such phenomena in the literature. However, we must not lose sight of the fact that one of the main indications for using anaesthesia in children is to avoid an unpleasant and mentally disturbing dental experience.

Nowhere in our presentation have we advocated the use of ketamine without proper precautions or its administration by unskilled persons, although we believe ketamine could be safer in unskilled hands than conventional anaesthetic agents. However, with skilled administration and proper precautions, ketamine is a simpler and



safer anaesthetic for the dentist than conventional techniques. Bearing in mind that the patient is ambulatory and the dental office is used, our comments take on more meaning. As the article states, the ideal would be a hospital environment, but few centres provide these facilities.

Our paper presented our experience with ketamine based on clinical observations and we consider it a satisfactory and efficient anaesthetic agent for dental procedures on children. On the basis of our experience, we feel justified in making this claim. Obviously, we cannot prove this; only by accumulating sufficient experience can we show that ketamine is an acceptable agent.

*N. A. McFarlane, DDS  
W. E. Spoerel, MD  
1200 Highbury Ave  
London, Ont*

### Community health centres

As you may know, I have been given a grant by the federal government to study, with the help of an expert committee, the delivery of ambulatory health care at the community level through various forms of health centres. The need to recognize and establish community health centres was included in the report by the Task Force on the Cost of Health Services.

The Minister of National Health and Welfare has appointed an expert project committee to work with me in my capacity as the full-time project director. In general, this committee will serve as an advisory, supportive, review, reference and guidance body for the project and as the responsible group from which reports will be forwarded to the Conference of Health Ministers. The committee, in its final report due June 1972, will describe types of health centres which might be chosen for development in Canada. The committee will also recommend on possible roles which government and other organizations might play in encouraging the development of such centres.

Selected models of centres that presently exist in Canada, the United States and western Europe will be examined and evaluated. These will include centres sponsored by governments, consumers, the health professions and others. The committee will be expected to examine the relationship of such centres to social services as well as to hospitals and other services within the health care delivery system.

In a project of this nature and within the time constraint we must seek information from government, professional, consumer and other groups in Canada who have experience to contribute. In this regard, I am writing to many or-

ganizations and groups to request any who feel they may be helpful to send written submissions related both to their views and also any experience they may have had.

We would find it helpful to have information from any dentists who have had experience of working in group practices or in other types of ambulatory care setting, since we think that we could learn much from them about the formation, development, success or break-up of "health centres" of various types. It seems to be clear that in the pluralistic society of Canada there will be many new forms of ambulatory health care which will emerge, and we are attempting to discover what are the most appropriate of these to recommend.

It would be helpful to us if interested dentists would write to me by February 15, 1972 about their present experiences, all using the same outline so that we may make a comparative analysis of the letters. This is the outline we suggest:

1. What is the type, size and staff "mix" of practice or other ambulatory care centre in which you are working now? If you have previous experience in some other setting which you feel to be relevant, please note and discuss it also.

2. What is the geographical and cultural setting?

3. What is the work load? (Number of patients seen in the office, hospital inpatient, outpatient or emergency, home - per week, per month or per year)

4. How is the practice or centre financed? (Percentage of payment from Workmen's Compensation, contacts with industry, government agencies, etc., private fees, insurance, etc.)

5. How long has the practice or centre been in existence? Comment on its stability and major changes in its priorities, programs and staffing.

6. If a group partnership, how many dentists are partners? How many are salaried? Do the partners own the office building, equipment, etc.? Do all the partners form the board? Are there any other board members? Comments on admission to partnership.

7. What is the relationship of the group practice or other ambulatory care centre to other centres, hospitals, the public health agency, mental health services, official social services, and voluntary health and/or social services in the local community? (Please specify clearly the reality of this.)

8. Comments on the office or centre building, its advantages and disadvantages.

9. Comments on other staff. What other professions, technical and support personnel are involved? Is there a business manager? Is there any service provided by members of the public or clientele? (e.g. lay health workers)

10. Is there any link with universities? How is continuing education for dentists and other staff arranged? Is there

any encouragement to do research or to publish or speak on dental or health care problems?

11. Do you have any views on the feasibility of developing a system in which consumer-sponsored, profession-sponsored and government-sponsored health centres can all be accommodated?

12. Have you any comment on the feasibility of consumer-citizen-community involvement in policy and planning roles?

13. Have you any comments on the feasibility of the "single unit delivery" model or the "social unit" model ideas? (i.e. both personal health and social services from an integrated centre)

14. Other comments.

*J. E. F. Hastings, MD, DPH, CRCP(C)  
Project Director  
Community Health Centre Project  
55 St. Clair Ave E  
Toronto 7*

### Canadian Federation of Independent Business

Many members of our profession share the widespread concern among Canadians about the form and shape our society is taking, in which our lives are increasingly shaped by an all-pervasive influence from Ottawa.

This is not an argument against a particular political label, for the signs are all too evident that no matter what party is in power, the tendency is toward more and more centralization of power.

We are witnessing the demise of a free society and the growth of a controlled society; and I believe that we as a profession have an obligation to our fellow citizens and to ourselves to oppose the trend.

To my colleagues who wish to take action in this respect I recommend the Canadian Federation of Independent Business (CFIB), a newly formed organization under the leadership of John Bulloch. Mr. Bulloch is the teacher and engineer who led the Canadian Council for Fair Taxation into battle over Mr. Benson's white paper. An important part of the CFIB is its "Mandate Ballot" that encourages communication between the individual and his own member of parliament, and which gives the Federation guidance in carrying out its program in support of free enterprise.

The Federation is located at 745 Mount Pleasant Rd, Toronto 298, and membership material can be obtained by writing or telephoning (416) 486-7700.

*R. M. Bennett, DDS  
1482 Bathurst St  
Toronto 10*





W. G. McIntosh, DDS

### Regulations for dental x-ray equipment

Some months back regulations pertaining to dental x-ray equipment were drafted by the Department of National Health and Welfare to accompany the "Radiation Emitting Devices Act" passed in May, 1970. Because dentistry was not consulted during the drafting process a number of clauses were either unnecessarily restrictive or obscure in interpretation.

Doctor Guy Poyton, associate dean and professor of radiology at the University of Toronto's Faculty of Dentistry and a former member of the CDA Council on Research, kindly examined the draft regulations for us and identified the specific areas of concern. His observations were sent to the Radiation Protection Division of the National Health and Welfare Department.

As a direct result of Doctor Poyton's efforts, the Association was invited to nominate a representative to meet with an ad hoc committee on extra-oral dental x-ray equipment regulations. Doctor Poyton served as the CDA nominee. Several modifications were made in the regulations—all advantageous to the patient, dentist and manufacturer of x-ray equipment.

It is interesting to note that, of the many different kinds of radiation emitting devices coming under the act, colour television sets and dental x-ray machines drew top priority in the drafting of new regulations.

### Seminar for health administrators

Health administrators from across Canada gathered in Ottawa in late November for a three day educational seminar sponsored by the Ontario Section of the American College of Hospital Administrators. I was privileged to participate in the program as one of 14 panelists discussing the organization and delivery of health care.

Joan Hollobon, science reporter for the *Toronto Globe and Mail*, launched the seminar with a challenging keynote address. She criticized present health care delivery systems as being too confined in scope and distribution to meet the new philosophies of health care. Hospital boundaries, she told us, are no longer defined by four walls. Hospitals must cooperate with all other health-related groups in looking to the total health care needs of the community.

Miss Hollobon stressed the urgency of developing effective new programs. She warned that the time for procrastination was past. "Demonstration models," she said, "are now replacing royal commissions as a means of looking very busy while doing nothing."

Federal Health Minister John Munro outlined Ottawa's proposed changes in cost sharing arrangements for health services. He said that the present arrangement between the federal and provincial governments would be replaced by one based on the Gross National Product. Under the new arrangement, federal moneys will no longer be limited to physicians' and hospital services, he said, adding that a federal fund of \$640 million would be set up to help the provinces during transition from the present to the new cost sharing formula.

Other thought-provoking statements made during the seminar:

- Canada uses a larger percentage of its Gross National Product for health services than any other country in the world.
- To curb spiralling costs in the field of health care, governments are now prepared to put the cap on expenditures and concentrate on developing more efficient systems of delivery.
- New health care programs must be based on cost-effectiveness.

Throughout the seminar, speakers stressed the need for more cooperation in program planning among all groups involved in providing health care services.

Many references were made to the concept of setting up community health centres, although there was no unanimity on the form such centres should take. A major national study, known as the "Community Health Centre Project," now underway is expected to provide some valuable guidelines in this area. A 20 man task force, led by Doctor John E. F. Hastings of the University of Toronto is looking into all aspects of community health centres. Its report, expected next June, could have a major impact on future developments in the delivery of health care in Canada.

The Canadian Dental Association and other interested groups have been asked to contribute to the work of the task force by providing ideas, relating experiences or supplying any pertinent references. I therefore invite interested readers to send me their suggestions or comments; these will be forwarded to Doctor Hastings.



# Dialogue

*The profession's influence in shaping dental components of Canada's emerging health plans is directly related to the individual dentist's attitude toward his own professional groups and his participation in the democratic institutions of society. This and other important messages surfaced in two keynote addresses at the September 30, 1971 convocation of the Royal College of Dentists of Canada. The speakers were H. R. MacLean, Edmonton, a past president of the Canadian Dental Association, and A. M. Hayes, Vancouver, retiring president of the Royal College. Following are excerpts from the two addresses:*

## If you don't do it, it won't get done!

After spending some 35 years connected with dental education, I am convinced that the most valuable ingredients that can be dispensed to the student are those of proper attitude, a desire for continued improvement, integrity and the practice of self-assessment. No testing can be accurately performed in these areas.

There have been discussions this past year in more abuse of the trust and privilege of performing the best than one area on this continent of a public monitoring service possible for the patient has generated demands of all health providers through legislation. Alleged for peer review.

According to R. J. Nelson, executive director of the American College of Dentists, "the very substance of peer review can be derived only out of the integrity of the individual professional and the correlative aggregate integrity of his profession. If the individual and his profession are to rescind the obligation of effective peer review, then the privilege and position of the profession will be lost. If it becomes necessary for society through legislation to "protect" the patient by legal code and pointed specifications, then the essence of the true professional will vanish, his practice will become a livelihood rather than a way of life."

Doctor Nelson points out that "the individual must first review his own mode of practice and then join with others of like intent to review and thus renew the full confidence of the public. The first step in peer review is self-assessment."

Looking back over the past few years since a national health plan existed in Canada, I feel dentistry should have been included initially and that we are now in the awkward position of trying to catch up to the other areas of health services. Dental services have been omitted from the so-called comprehensive health care program partly because of anticipated heavy expenditure. However, dentistry was not an essential health requirement in the opinion of many planners.

We must assume some responsibility for failing to accept the principle ourselves and for failing to convince the people that care of the oral structures merits equal attention to care of the rest of the body. Failure of

dentistry's inclusion in the plan has resulted in the public regarding dental care, by implication, to be separate from comprehensive health care and, although dental care may be regarded as a right, it is placed in a separate category. Therefore one of our responsibilities in the future will be to impress on the people of this nation the importance of dental care and prevention so that they will demand its inclusion in the national health program.

And finally, I urge you to support your national body in its efforts to build a stronger and better organization for the advancement of service to the people through the dental profession. You can influence your confrères to revive the excellent tradition which says that when they are not satisfied with what is going on, they do something about it. They become involved—get into the action locally and nationally. Then they have an interest and a relation with the operation and indeed may well be responsible for some of the accomplishments we anticipate. As someone put it more effectively than grammatically: "If you don't do it—it won't get done!"

H. R. MacLean, DDS, FRCD(C)  
300 Birks Bldg  
Edmonton 14, Alta

## The danger from within and without

The tragedy today is that society does not trust us as professionals. It does not trust teachers and principals to handle education, doctors and hospital administrations to handle medical care, nor dentists and dental associations to be responsible for dental services.

A manifestation of this process is the trend across Canada to alter the traditional manner in which professions have regulated themselves and to replace this authority with lay bodies directly responsible to government. The immediate result may well achieve some short-term gain, but the breakdown of our traditional practices and restraints will have an impact on the very nature of our profession.

Governments, in an effort to provide service, have shown little feeling or concern for the traditional values of professional practice, and often their policy is based less on knowledge than the premise that the situation demands action. A great tradition is in danger and, if it goes by the wayside, it will create conditions which are not harmonious or conducive to professional growth.

It is not that professions should cast themselves in the role of arch reactionaries to change. It is contrary to the humanitarian principles of the work in which we are engaged to resist change which will bring our services to the people who need them and cannot obtain them.

The threat to our great traditions comes also from within the profession itself. We dentists are at best passive to the social changes that are going on around us. The dentist, perhaps by the nature of his work, tends to become parochial in his thinking and isolated

(Continued on page 38)



## CDA Urges Recognition of Dental Technologists

Dental technologists, as defined by the Ad Hoc Committee on Dental Auxiliaries (Wells Committee), should be considered auxiliaries, the Canadian Dental Association declared in a statement released to the press on December 16, 1971.

The Association said its action, designed to expand the provision of denture services to the public, was in keeping with its policy on dental auxiliaries adopted at the 1970 national convention. The policy says that it is the prerogative of the dentist, subject to his licensing authority, to delegate to formally trained auxiliaries over whom he exerts effective supervision and control such duties as do not require the professional knowledge and skill of the dentist exclusively.

The Wells Committee, a federal group headed by the Hon. Dalton C. Wells, Chief Justice of the Supreme Court of Ontario, recommended that the duties of dental technicians be defined in provincial dental acts as including the fabrication, reproduction or repair of prosthetic appliances, as prescribed by a dentist.

It further recommended that, on completion of additional accredited educational and training programs, these technicians would become technologists enabling them, on prescription by a dentist, to perform the fabrication and fitting of complete dentures directly for the public, working in dental offices and clinics under the supervision of a dentist.

The CDA stated that if the recommendation of the Wells Committee were implemented as contained in the report, it would mean the service offered to the public in this regard would be of the highest quality, ensured through the proper training of technologists and supervision by the dentist. It would also be rendered at the lowest possible unit cost and it would be provided with complete regard for the health and safety of the patient.

Use of dental technologists could relieve the dentist of certain duties involved in this area and enable him to devote more time to those aspects of dental services which require his unique skills, the statement added.

### CDA urged to seek representation on national health agencies

The Executive Council, at its December 7-9 meeting, decided that the Canadian Dental Association should seek representation on as many health-related national agencies as possible. The step was taken in order to increase dentistry's influence in the development of health programs and to promote a greater awareness of the profession's attitude on the dental components of such programs.

The action was motivated by a report showing a total absence of dental representation in the recent or proposed formation of a National Council on Health and three other national agencies dealing with community health centres, national health grants and health service accreditation. One reason for the absence of dental representation is that "dentistry cannot make up its mind whether or not it wants to be involved in national health programs," said the report. It cited as

illustrations the delay in advancing the CDA Dental Health Plan for Children and the difficulty in getting corporate members to agree on the position the Association should take with respect to in-hospital requirements for dental services under medicare.

Also endorsed by the council was a resolution supporting the principle of group involvement by voluntary health associations like the CDA in the accreditation of services which their respective members perform in hospitals. Spearheading this move is the Canadian Council on Hospital Accreditation. Other affected health groups are the Canadian Medical Association, l'Association des Médecins de Langue Française du Canada, the Royal College of Physicians and Surgeons of Canada, the Canadian Nurses Association, the Association of Canadian Medical Colleges and the Canadian Federation of Medical Licensing Authorities.

In other actions, the council:

- Established a special Committee on National Health Programs to formulate recommendations on matters of principle with regard to such programs;

- Approved and referred to the Committee on National Health Programs a proposal regarding community health centres emanating from the October 19-22, 1971, National Health Manpower Conference in Ottawa. Conference participants recommended "the production of a series of community health centres as demonstration models with suitable combinations of health personnel remunerated in such a way that the incompatibilities of fee-for-service and salary are overcome;"

- Affirmed the principle of considering health science educational resources as national assets. The council referred this decision to the Council on Education for study and asked the Committee on National Health Programs to develop an interim policy statement;

- Urged the Council on Dental Services to give high priority to its study of the Canadian Dental Association's role in relation to dental services under medicare and dental care programs;

- Supported in principle the formation of a National Health Council with advisory responsibilities, and offered the CDA's cooperation in the formation and operation of such a body;

- Authorized Executive Director W. G. McIntosh to extend to the Fédération Dentaire Internationale an official invitation to hold the XVIth World Dental Congress in October 1977 in Toronto;

- Appointed W. J. Spence, Toronto, and Louis Bernier, Quebec City, as CDA representatives to the Board of Directors of Canadian Dental Service Plans Inc; and

- Recommended that CDA past presidents receive honorary associate membership on retirement from active practice.



The council also acknowledged with appreciation a decision by the Ontario Dental Association to raise the Ontario per capita grant to the national association to \$55 in 1972. But because of inherent difficulties when corporate member grants are not established on a uniform basis, the council also urged the Ontario Dental Association, the Royal College of Dental Surgeons of Ontario and the College of Dental Surgeons of the Province of Quebec to use their influence in bringing the Ontario and Quebec grants up to the approved level of \$65 at the earliest possible moment.

## Staff appointments at CDA



Stephen Bitten

Diane Charter

W. G. McIntosh, executive director of the Canadian Dental Association, has announced two new staff appointments effective in December, 1971.

Diane Charter, Newmarket, has joined the Association's editorial department as news editor. A graduate nurse, Miss Charter has worked in various capacities as a journalist in the health care field for the past eight years. She was editor of *Southam's Hospital Administration in Canada* from 1967 to 1969 and, most recently, was a contributing editor to the *Canadian Hospital Journal*.

Stephen Bitten, Toronto, has been appointed public information officer, CDA Bureau of Public Information. Mr. Bitten graduated from Guelph University in 1968 with a diploma in agrobusiness. After two years working in the industrial business field, he joined the staff of the Better Business Bureau of Toronto as head of the Information Services Department.

As public information officer, Mr. Bitten will be assigned to external communication with governments, news media and the public, taking over duties previously handled by Carleton Cowan Public Relations.

Both appointments were authorized by the CDA's Board of Governors in 1971 as a direct result of recommendations made by Carleton Cowan in a 1969 study of Association services and again in a 1971 study carried out by the Thorne Group Management Consultants.

## Canada and the Provinces

### Quebec bill envisages sweeping changes for professions

A bill which makes some important changes in the way professions operate was tabled in Quebec's National Assembly November 18. The 248 article volume centralizes the roles of 34 professions previously governed by scattered, but similar, rules.

The important changes in Bill 250:

—An interprofessional council that already exists will be made a legal entity, to counsel the government on running of the professions.

—A governmental Quebec Professions Board will be created to oversee the ethics, finances, bill-collecting procedures and indemnity provisions of the corporation. Its three members will be named by the government in consultation with the interprofessional council.

—Discipline in each profession will be regulated by a three man board, two members of the profession named by the corporation and a government-named lawyer. There will be an appeal to a panel of three Superior Court judges.

Each corporation, under the bill, would have to be administered by a bureau containing a certain number of government-appointed directors as well as directors elected by the members of the corporation.

The Quebec bill stems from recommendations in one of the reports of the Castonguay-Nepveu Commission (reported on page 320 of the September 1970 Journal). It was accompanied by a new dental act, medical act, bar act and notaries' act to fit the old laws into the new code.

Under terms of the proposed legislation, the government will maintain stricter controls over the activities, disciplinary measures and fee schedules of 34 self-governing professional corporations in Quebec.

One effect could be to exempt these groups from provisions in pending federal competition legislation. They would then escape the looming prospect of federal supervision and possible prosecution for fee-setting.

An option clause in the federal legislation enables a province to leave a self-governing group subject to the federal law or to exempt it.

The exemption requirement is that a public interest clause be inserted into the provincial statute by which the self-governing group operates. The regulating body must be expressly charged with carrying out its duties in the public interest.

While the Quebec bill would exempt groups from federal prosecution it would also give the provincial government a more powerful hand.

The bill says it is aimed at protecting the public against fraud, malpractice and incompetence at the hand of the professional.

It will require professional corporations to make their activities and finances public in an annual report to the National Assembly.

It seeks to "establish procedures and rules of discipline for all professional corporations and to institute an identical system for ascertaining the quality of the professional acts done by their members." In support of this objective, the Quebec Professions Board will publish a journal detailing results of disciplinary decisions and the board's rulings.

The bill is now being studied by the National Assembly's justice committee.

## International Items

### Doctor Glickman will address periodontists in Chicago

Irving Glickman, chairman of the Department of Periodontology at Tufts University School of Dental Medicine, will be the guest speaker when the Chicago Periodontal Research Study Club meets in Chicago February 13. His subject will include plaque control, scaling and curettage, periodontal surgery and occlusal adjustment — their role in chairside practice.

The fee for the all day program is \$40 and includes lunch. Cheques should be made payable to the Chicago Periodontal Research Study Club and mailed to Doctor Martin Lerman, 1950 Sheridan Road, Highland Park, Ill 60035, USA.

### Oral pathologists schedule spring meeting in Colorado

The American Academy of Oral Pathology will hold its 1972 annual meeting April 12-15 at the Antlers Plaza Hotel in Colorado Springs.

The program features an essay session, clinical pathologic conference, and a slide seminar dealing with granulomatous, sarcomatous and related lesions.

Four continuing education programs are also scheduled as part of the meeting. Subjects to be covered include: clinical laboratory aspects, diagnostic and unusual problems in oral disease, cryotherapy and dental and oral manifestations of genetic disease.

Further information may be obtained from G. G. Blozis, Secretary-Treasurer,



College of Dentistry, Ohio State University, Columbus, Ohio 43210, USA.

### Dental medicine academy plans May conference

The Northwest Academy of Dental Medicine has finalized plans for its 28th annual conference to be held May 25-28 at Sunriver Lodge, Sunriver, Oregon. Details of the program and registration forms may be obtained from Gladys H. Underwood, 610 SW Alder, Portland, Oregon 97205, USA.

### Orthodontic seminar in Puget Sound in July

Canadian dentists have been invited to attend a limited attendance seminar on "The Universal Appliance - Its Rationale and Technique" in the Alderbrook Inn, Puget Sound, Washington, July 24-28, 1972. The chairman of the meeting, which is sponsored by the Pacific Coast Orthodontic Consultation Group, will be Arnold Stoller.

For further information, please write to Robert Yudelson, 13203 E Hadley, Whittier, California 90601, USA.

### Canadian dentists invited to New Zealand

"The Future Dimensions of Dentistry" will be the theme of the Sixth Biennial Conference of the New Zealand Dental Association to be held in Rotorua, August 21-25, 1972.

D. C. Smith of the University of Toronto's Faculty of Dentistry will be one of the main lecturers. Other guest speakers include C. L. Nabers, San Antonio, Texas, and K. I. Donaldson, University of Otago Dental School, New Zealand.

Canadian dentists wishing to attend should write to G. R. Ritchie, Box 485, Hamilton, NZ.

## Dental Organizations

### Newfoundland association holds annual meeting

New officers were elected when the Newfoundland Dental Association held its annual meeting in St. John's October 27-30. C. P. Daly of St. John's succeeded G. M. W. Hewitt of Gander as president. W. J. Dwyer, St. John's, and

### Our Mistake

Pictures of CDA student table clinic award winners, published in the November 1971 Journal, indicated Miss Nancy Earl as second prize winner in the clinical application and technique category. Miss Earl attends the University of Saskatchewan, Saskatoon, not the University of Alberta as indicated in the Journal captions.

R. D. Sexton, Corner Brook, are first and second vice-presidents respectively. The treasurer is R. F. Furlong, St. John's. B. L. Bowden, St. John's, continues as secretary and N. R. T. Littlejohn, Mt. Pearl, is assistant secretary.

Guest speakers at the meeting included Louis Bernier, Quebec, president of the Canadian Dental Association, and W. G. McIntosh, CDA executive director.

### Public health dentists have new officers

Paul Simard of Lévis, Que, has succeeded R. E. Feasby of Toronto as president of the Canadian Society of Public Health Dentists. Frank McCombie, Victoria, was named president-elect. A. T. Salter of Edmonton is treasurer and J. M. Conchie, Surrey, BC, continues as secretary.

### Saskatoon dentists elect Doctor Henderson

Paul Henderson was recently elected president of the Saskatoon and District Dental Society for 1971-72. R. E. Racine was named vice-president and Earl Freidin, secretary-treasurer.

## Dental Education

### New appointment at Toronto

H. J. Sandham has been appointed associate professor in the Department of Preventive Dentistry, Faculty of Dentistry, University of Toronto.

A graduate of the University of Alberta, Doctor Sandham also earned an MSc and a PhD from the University of Manitoba. He comes to Toronto from

Birmingham, Alabama, where he was a staff member of the Institute of Dental Research, University of Alabama.

### Relative analgesia course set in Montreal

Jacques Monette of the University of Montreal and Kenneth Fordham, University of Pennsylvania, will conduct a course in nitrous oxide-oxygen relative analgesia, March 11-12, at the Grand Motor Hotel, 7700 Côte de Liesse Rd, Montreal.

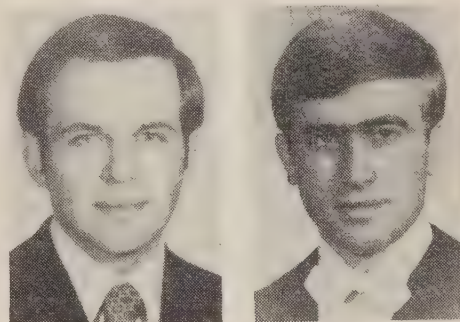
The program, in French and English, will stress the value of relative analgesia in dental practice and dentistry for children. Participants will earn continuing education credits which may be filed with the College of Dental Surgeons of Quebec.

The registration fee for dentists, including two luncheons, is \$125. Dental assistants may register for \$15. For information and registration, contact Jacques Monette, 2157 Fleury St East, Montreal 360, Que (Tel 384-3720).

### New appointments at McGill U

Two full-time appointments at the Faculty of Dentistry, McGill University, Montreal, have been announced. They are J. W. R. Stamm and G. J. Harasymowycz.

Doctor Stamm has been named assistant professor, Division of Community Dentistry, and assistant professor in the Department of Epidemiology and Health, Faculty of Medicine. A graduate of the University of Alberta, he was formerly dental officer for the Depart-



J. W. R. Stamm

G. J. Harasymowycz

ment of National Health and Welfare in the Baffin region of the Arctic. He holds a DDPH degree and an MScD in epidemiology and biometrics from the University of Toronto.

Doctor Harasymowycz is assistant professor of operative dentistry. He is a dental graduate of McGill University and received his diploma in fixed and removable prostheses from the same university in 1971.



## Quebec college sets continuing education requirements

The College of Dental Surgeons of the Province of Quebec has announced new measures to keep dentists up to date with advances in the profession. In future they will have to accumulate a minimum of 12 credits each year by attending conventions, dental meetings or continuing education courses.

The college is also sending an English and French team of experts across Quebec to conduct paedodontic courses in preparation for the introduction of a children's dental program under Quebec's Medical Care Insurance Plan.

A Quebec dentist can earn three credits by attending national or provincial conventions or courses sponsored by the college. University courses are worth five credits and study club sessions two credits. Specialists can earn three credits by going to a meeting of their specialty society and five credits if they attend a university course.

Only one other provincial organization has ventured into the field of mandatory continuing education. Alberta specialists, who are to be re-licensed every five years, must accumulate 200 credit points in that time in order to qualify.

## Economics

### Public shies away from denticare cost

A government-sponsored dental care program would be welcomed by 92 per cent of the public "if cost were not a factor," according to a survey by University of Toronto dental students. However, when a monthly premium of \$10 to \$12 was suggested, public approval dropped to only 43 per cent.

The survey also showed that 81 per cent of Ontario's dentists favour such a program in principle, but many cautioned against the high cost of extending full dental care to the entire population all at once.

This information was turned up in a survey conducted last summer among 700 people in Toronto and 150 in Welland. Over half the province's 3,300 dentists also responded to the questionnaire.

The survey, conducted under an \$11-500 Opportunities for Youth grant, showed that 53 per cent of the public would prefer a free dental plan rather than a wage increase if offered by their employers.

In addition, 52 per cent said they would prefer a government plan while

29.7 per cent opted for a private scheme.

Approval of a publicly financed government dental care program increased among those with greater education. Younger dentists favoured it more than their senior colleagues. However, many expressed concern about the extent of coverage, stating a complete program could be too expensive.

### Senate poverty committee wants dental care included in medicare

The Senate Committee on Poverty November 10 proposed that dental services and prescription drugs be covered under Canada's health insurance system.

The report, three years in the making, was tabled in the Senate by Senator Croll, who called it a "Magna Carta for the dispossessed."

It urged that the whole apparatus of health care insurance should be financed out of general revenue. At the federal level, that would mean no more special income tax levies for medical care insurance. At the provincial level, such a step would involve discontinuing provincial premiums and fees for health care services.

### Ontario to get denture clinics

A network of low-cost cooperative denture clinics is being opened by the dental profession in key centres throughout the province, the Ontario Dental Association announced December 16.

The denture clinics will offer dentures of the same quality as those provided patients of private dentists at fees \$100 below present fee schedules, L. J. Schiller of Windsor, president of the ODA, said.

In conjunction with the announcement, the Royal College of Dental Surgeons of Ontario said it was creating a new category of auxiliary workers to assist dentists in prosthodontic service.

The Ontario health department has been asked to approve a new one year course open to registered dental technicians who would undergo training which would upgrade their qualifications and recognize them as "dental prosthetic therapists."

N. L. Diefenbacher, president of the RCDS, said the therapists would be "qualified to receive patients, take impressions and bite registrations, and fashion complete upper or lower dentures, under the supervision of a dentist." They would thus resemble dental technologists advocated by the Wells Ad Hoc Committee on Dental Auxiliaries.

Doctor Diefenbacher said the purpose of the new course was to provide

highly qualified clinical personnel whose work would reduce the operating costs of dentists by assuming some of the dentists' duties. This would help control dental costs to the public "without sacrificing the quality of dental service."

Dental prosthetic therapists would work under the supervision of a dentist who remains totally responsible for the patient's welfare, Doctor Diefenbacher said. He said they would receive training in anatomy, intra-oral clinical procedures, and other biological sciences.

In outlining the program of low-cost denture clinics, Doctor Schiller said these are being set up initially in Toronto, Hamilton, Windsor, Oshawa, Ottawa, St. Catharines, Sudbury and Peterborough. Fees will average \$180 for complete upper and lower dentures, compared to the usual fee schedule of \$280, Doctor Schiller said.

The ODA president said the profession was starting the low-cost denture clinics to meet a demonstrated public need. He stressed that the quality of the dentures available through the new clinics would be the same as those prescribed by private dentists. However, patients would receive less individualized personal attention than they would from their family dentists.

## Fluoridation

### Fluoridation spreads availability of dental care

"Fluoridation . . . has been shown repeatedly to enable a given number of dentists to treat twice as many children as the same number in communities without fluoridated water," according to a statement in the 1970 report of the Newfoundland Department of Health.

Newfoundland is one of four Canadian provinces that offers a natural help with fluoridation. The others are Nova Scotia, Quebec and New Brunswick.

In Newfoundland and Labrador the government will pay 50 per cent of the capital costs, operation and maintenance of installations for fluoridating public water supplies.

## Public Health

### Task force to probe dental needs of Ontario's mentally retarded

D. G. Gardner, London, has been named chairman of a special task force to look into the dental needs of Ontario's mentally retarded residents.



Doctor Gardner, who is associate professor and chairman of the Division of Oral Biology in the Faculties of Dentistry and Medicine, University of Western Ontario, heads a seven man team which is to:

Examine the needs for dental service of the mentally retarded in Ontario;

Identify areas of unmet needs; and

Recommend how dental services for the mentally retarded may be improved.

Other members of the task force are D. E. Zarfes and P. G. Lynes, both of the Mental Health Division, Ontario Department of Health; R. E. Feasby, senior dental consultant, Ontario Department of Health; Norman Levine, associate professor, Faculty of Dentistry, University of Toronto, and dental consultant, Ontario Association for the Mentally Retarded; R. D. Hodges, dental consultant, Ontario Hospital School, Orillia; and R. K. Ryan, dental consultant, Ontario Department of Health.

## Research

### Stresses importance of functional occlusion

Correct tooth alignment and a harmonious functional relationship between the mandible and maxilla are essential for establishing an occlusion in which all components work efficiently and without pain, according to F. E. Shamy, a Montreal orthodontist, who lectures at McGill University. He was a participant at a panel discussion on occlusion at the CDA national convention in Ottawa.

Doctor Shamy said he tries to achieve alignment without the extraction of teeth. "I resort to multiple extraction of bicuspid only in genuine dento-alveolar space discrepancies with disproportionate tooth-bone material relative to the muscular environment, or when molars and bicuspid cause mesial migration of the dental arches."

Doctor Shamy admitted some exceptions to this rule, however. They include teeth with mutilated crowns or periapical lesions, patients who have lost their teeth prematurely, excessive vertical dimension associated with severe anterior open bite, and adult patients being prepared for denture service.

"In crowded, overlapping mandibular incisors, I prefer to extract one incisor or reduce the width of all incisors rather than extract two mandibular bicuspid," he said. He also prefers to correct a Class II molar relationship by rotating the occlusal plane and retracting the maxillary buccal segments, rather than extracting two maxillary bicuspid.

A critical point made by Doctor Shamy dealt with aesthetic results that are in harmony with functional require-

ments. Ethnic origin and its related facial configuration is always important, he said, adding that it is wrong to alter soft tissue facial profile because of rigid functional requirements.

There must be acceptable harmony between centric relation, centric occlusion and mandibular excursions. Closure into centric occlusion must be free of displacing contacts. Similarly, movement from centric into lateral excursions must be free from interfering contacts, he said.

Incisal overjet and overbite must be harmonious with correct incisal guidance and mandibular excursions. It is not necessary to establish a "most retruded" position of the condyles in the glenoid fossa, nor a "superior and forward" position of condylar heads within their bony encasement, Doctor Shamy said.

Noting the importance of retention treatment after the orthodontic appliance is removed, he said the best technique for stabilizing the occlusion following orthodontic treatment is through occlusal adjustment and judicious shaping of cusp inclines. But correct intercuspation of teeth in the acceptable maxillo-mandibular relation is a prerequisite to occlusal adjustment in orthodontics. A good centric hold without displacing contacts, associated with functional mandibular excursions without lateral interfering contacts, is the optimum clinical objective for stability of occlusion after treatment, he said.

### Sealant cuts tooth decay by 99 per cent after two years

Children treated with a pit and fissure sealant have a 99 per cent caries reduction after two years, according to Michael Buonocore of the Eastman Dental Centre in Rochester, NY.

Doctor Buonocore, who addressed the CDA national convention in Ottawa in October, reported the latest findings of a two year study which revealed a "99 per cent caries reduction afforded the pits and fissures of permanent teeth after two years following a single application of an adhesive resin to seal the vulnerable areas."

Doctor Buonocore said his study further showed that at the end of the second year the adhesive was retained on 87 per cent of the permanent surfaces with only 13 per cent showing complete loss of adhesive coverage.

The control enamel surfaces by comparison showed a 60 per cent caries incidence, Doctor Buonocore reported.

Doctor Buonocore stressed that the procedure of painting the sealant on the teeth is simple and rapid and coupled with other preventive measures could be handled by dental auxiliary personnel.

Doctor Buonocore is research coordinator at Eastman Dental Centre and associate professor of clinical research at the University of Rochester School of Medicine and Dentistry.

### Fillings with fluorides may reduce caries incidence

Adding fluorides to amalgam alloy restorations may bolster a tooth's ability to resist caries, a dental materials expert told the scientific session of the American Dental Association last October.

But before fluoride amalgam alloys can be recommended for widespread clinical use, said R. W. Phillips of Indianapolis, a number of questions remain to be answered.

"One is whether the added fluoride will alter the properties of the amalgam, such as reducing the strength or resistance to corrosion. More important is a lack of clinical evidence to corroborate the encouraging in vitro laboratory data on the topical effect of fluoride in reducing enamel acid solubility," he added.

When conventional amalgam alloys are used, decay frequently develops later in the marginal areas of the restoration. This probably results from micro-leakage at the margin.

Doctor Phillips said that fluorides react with the adjacent tooth structure during and following placement of the restoration resulting in a decrease in the acid solubility.

## CDA Retirement Savings Plan

Unit values of the Canadian Dental Association Retirement Savings Plan stood as follows on November 30, 1971:

*Fixed Income Fund* \$12.570;

*Common Stock Fund* \$22.413.

Total assets (market value) of the plan were \$10,324,095.50.

The following portfolio sale occurred during the preceding month: 4,500 shares Reed Shaw Osler.

Section 79B of the Income Tax Act permits tax free contributions of up to 20 per cent of earned income or \$2,500, whichever is less, to a personal retirement savings program.

The Royal Trust Company, trustee of the CDA Retirement Savings Plan, offers two separate investment media: a fixed income fund and a common stock fund. Contributions may be allocated wholly or partly to the funds of the contributor's choice. Transfers between funds are allowed without penalty.

The fixed income fund, confined to



guaranteed government bonds, other guaranteed fixed income securities, debentures, preferred shares and other fixed income securities, offers excellent income with maximum security. The common stock fund, comprising Canadian and carefully selected American and other foreign stocks, has capital growth as its main objective.

No charges or commissions are payable on joining or withdrawing from the plan.

February 29, 1972, is the final date for contributions to the CDA Retirement Savings Plan for the 1971 taxation year. Money received after that date must be credited to 1972. Readers are urged to send their contributions early and mail them direct to Canadian Dental Service Plans Inc, 230 St. George St, Toronto 180, Ont.

## Awards and Appointments

**Harry K. Brown** has been named as the first honorary member of the Canadian Society of Public Health Dentists.

Doctor Brown is widely recognized as one of the pioneers in public health dentistry in Canada. He was chief of the federal government's Dental Health Division from 1947 to 1963. One of his major accomplishments during this period was completion of the Brantford fluoridation study, a 15 year evaluation of the effects of water fluoridation.



H. K. Brown

Doctor Brown retired in 1970 as lecturer at the University of British Columbia's Department of Public Health and Community Dentistry. He holds an honorary degree from the University of Alberta and is an honorary life member of the Ontario Public Health Association and the Canadian Public Health Association.

Noted paedodontist, **S. A. McGregor**, was presented with an honorary life membership in the Academy of Dentistry, Toronto, when the academy held its 34th Annual Winter Clinic November 25.

A 1931 graduate of the University of Toronto, Doctor MacGregor was formerly head of that university's Department of Paedodontics.



S. A. MacGregor

Montreal orthodontist **H. T. Oliver** was elected president of the Northeastern Society of Orthodontists at the group's November 3-6 annual meeting in New York City. Doctor Oliver lectures at McGill University and serves at the Montreal Children's Hospital, the Shriners Hospital and Catherine Booth Hospital. He is also a past president of the Canadian Association of Orthodontists. The Northeastern Society of Orthodontists, largest component of the American Association of Orthodontists, draws members from the Atlantic provinces, Quebec and New England states.

## Deaths

Jones, E. M. 83. Melita, Man. University of Chicago, 1918. 31-10-71.

McCormack, Roy. 78. Edmonton. Royal College of Dental Surgeons of Ontario, 1917. 5-11-71. Associate member CDA. Survived by Jean (wife); Mrs. H. Norman and Mrs. Gordon Hill (daughters); Miss Vivian McCormack (sister); and two grandsons.

Pommer, William Albert. 76. Winnipeg. Royal College of Dental Surgeons of Ontario, 1920. 5-11-71. Associate member CDA. Survived by Grace (wife); Mary Armitage and Helen Maunder (daughters).

Price, Rowland Fennell. 76. Ottawa. Royal College of Dental Surgeons of Ontario, 1915. 3-11-71. Survived by Ruth (wife); Mrs. H. C. Rous and Irene Price (sisters); David (brother); John E. Rous (nephew); Mrs. J. S. Kyle, Mrs. Howard Clark and Mrs. Robert Jackson (nieces).

Taylor, Omer Crosby. 67. Antigonish, NS. Dalhousie University, 1930. 9-10-71.

Thomson, Harry Scott. 93. Moncton, NB. Tufts University, 1906. 2-12-71. Honorary member CDA. Survived by Helen (sister) and James, Peter and Janet Clare (grandchildren).

## In memoriam

### Harry Scott Thomson

Harry S. Thomson, Moncton, died on December 2, 1971, at the age of 93.

Born in Moncton, NB, Doctor Thomson graduated from Tufts University Dental College, Boston, in 1906 and then practised in his home province. He joined the Canadian Army Dental Corps in 1916, retiring in 1920 with the rank of major.

A noted pioneer in health education of the public, Doctor Thomson was director of educational service for the Canadian Oral Prophylactic Association from 1920 to 1925 and field secretary for the Canadian Dental Hygiene Council from 1925 to 1951. During his term as field secretary, he conducted mouth health campaigns across Canada, gaining financial support from governments and dental organizations. These efforts led directly to recognition of the need for and establishment of dental health divisions in various government health departments.

In 1941 Doctor Thomson was appointed associate professor of public health at the University of Toronto, a position he held until 1948 when he retired from active professional service.

A former president of the New Brunswick Dental Society, Doctor Thomson also earned the distinction of being the first Canadian president of the American College of Dentists, an office he held in 1953 and '54. In addition, he was chairman of the Canadian Dental Association's Committee on Dental Public Health.

Doctor Thomson was one of the first members of the International Association for Dental Research and held honorary memberships in the New Brunswick Dental Association and the Ontario and Canadian Dental Associations. In 1952 he was awarded the Queen Elizabeth Coronation Medal and in 1967 he was the recipient of the William J. Gies Award given by the American College of Dentists. Each award was a tribute of recognition of Doctor Thomson's leadership and service in the field of dentistry.

Doctor Thomson is survived by a sister, Helen, and three grandchildren.



### Nouveau service dentaire prévu pour le Yukon et les Territoires

Le Dr K. W. Davey, responsable du Département de Pédodontie à l'Université de Toronto, a été nommé directeur d'un nouveau programme qui a pour but d'assurer les soins dentaires aux Indiens et aux Esquimaux du Yukon et des Territoires du Nord-Ouest.

Le but immédiat du projet, dont les frais sont pris en charge conjointement par le Ministère national de la Santé et du Bien-être social et par la Faculté dentaire de Toronto, est de former un groupe d'auxiliaires indiens et esquimaux qui deviendraient ainsi des thérapeutes dentaires. A la fin de leur cours, les thérapeutes seraient placés sous l'autorité d'un officier dentiste. Chaque officier aurait la charge de six thérapeutes.

Ces équipes constitueraient un nouveau prototype capable de fournir des services dentaires aux résidents extrêmement dispersés du Yukon et des Territoires du Nord-Ouest.

En plus du Dr Davey, le Dr. K. C. Titley, lui aussi de Toronto, agira comme assistant.

## L'ADC recommande la reconnaissance des technologistes dentaires

Les technologistes dentaires, tels que définis par le Comité spécial sur les auxiliaires dentaires (Comité Wells) devraient être considérés comme des auxiliaires, a déclaré l'Association Dentaire Canadienne lors d'une déclaration remise à la presse le 16 décembre 1971.

L'Association a déclaré que cette décision, qui a pour but d'étendre la distribution des services dentaires au public, était en accord avec sa politique sur les auxiliaires dentaires adoptée lors du congrès national de 1970. Cette politique stipule qu'il est du droit du dentiste, soumis bien sûr à son bureau provincial de licence, d'accorder à des auxiliaires dûment formées et sur lesquels il exerce une surveillance et un contrôle efficace, des tâches qui ne requièrent point l'habileté et les connaissances professionnelles du dentiste.

Le Comité Wells, une agence fédérale dirigée par l'honorable Dalton C. Wells, Juge en chef de la Cour Suprême de l'Ontario, a recommandé que les tâches assignées aux techniciens dentaires soient définies dans des lois dentaires provinciales et comprendraient la fabrication, la reproduction ou la réparation de toute prothèse, tels que prescrites par le dentiste.

Le rapport recommandait aussi que, après avoir complété un programme reconnu d'étude et de formation pratique supplémentaire, ces techniciens deviendraient technologistes, ce qui leur permettrait, sur ordonnance d'un dentiste, d'effectuer la fabrication et l'ajustement de prothèses complètes directement pour le public, et ce dans les cabinets dentaires ou des cliniques sous la surveillance du dentiste.

L'ADC a déclaré que si la recommandation du Comité Wells devenait effective, telle que contenue dans le rapport, ceci signifierait que le service offert au public dans ce domaine serait de la plus haute qualité puisque les techniciens auraient maintenant reçu une formation adéquate et que le tout se ferait sous la surveillance du dentiste. De plus ce service serait rendu au coût le plus bas possible et avec toute l'attention que requièrent la santé et la sécurité du patient.

L'aide des technologistes dentaires pourrait de plus soulager le dentiste de certaines tâches et lui permettre

ainsi de consacrer plus de temps à certains aspects des services dentaires qui nécessitent toutes ses connaissances et toute son habileté, d'ajouter la déclaration.

### Mlle Kirker nommée secrétaire des conseils de l'ADC

Mlle Kay Kirker de Toronto a été nommée Secrétaire générale des Conseils de l'ADC; c'est ce qu'a annoncé le Dr W. G. McIntosh, directeur général de l'ADC.

Dans ses nouvelles fonctions, elle aidera le directeur général à coordonner les services rendus par le personnel aux conseils et comités de l'ADC sauf ceux des Communications, du Secrétariat et du Congrès.

Mlle Kirker a fait partie du personnel de l'ADC au titre de responsable du Programme du test d'aptitude dentaire depuis 1966 et en plus comme secrétaire du conseil de l'Enseignement depuis 1968.

Mlle Beverley Nicholl de Toronto succède à Mlle Kirker comme responsable du Programme du test d'aptitude dentaire. Mlle Nicholl était auparavant au service de l'Ontario Institute for Studies in Education où elle acquit une vaste expérience dans divers programmes de tests reliés à l'enseignement.

## Chronique internationale

### ADA: ligne de conduite sur l'assurance-maladie et enquête sur la réciprocité des licences

L'Association Dentaire Américaine a décidé d'adopter comme ligne de conduite certaines nouvelles positions qui guideront tout programme national d'assurance-maladie.

Cette déclaration ainsi que la décision d'établir une enquête auprès de tous les membres de l'ADA sur la réciprocité de la licence représente l'un des événements marquants du congrès annuel de l'ADA à Atlantic City du 10 au 14 octobre dernier.

Cette nouvelle ligne de conduite que l'on a déjà qualifié comme "l'un des documents les plus importants de la dentisterie moderne" porte en préface la déclaration de principe suivante: "en considération d'un programme national d'assurance-maladie, la profession dentaire devrait prendre une part active dans la conception et l'appui d'un programme comprenant un régime dentaire qui répondrait aux besoins de tous les citoyens de cette nation. La profession dentaire continue à s'opposer à tout programme national d'assurance-maladie qui utiliserait les fonds publics pour fournir des services de santé aux personnes qui peuvent financièrement en



## PROJET DE LOI QUEBECOIS SUR LE CODE DES PROFESSIONS

Un projet de loi qui apportera de nombreux changements à l'organisation des professions a été présenté le 18 novembre dernier à l'Assemblée nationale du Québec. Le bill compte 248 articles et centralise le rôle de 34 corporations professionnelles qui étaient auparavant gouvernées par des règlements semblables mais dispersés.

Voici les changements importants proposés par le bill 250:

- établir une procédure et des règles disciplinaires que devront suivre toutes les corporations professionnelles qui seront soumises au code des professions;

- déterminer pour les professions un mécanisme identique de vérification de la qualité des actes professionnels posés par leurs membres;

- constituer un Office des professions du Québec chargé de maintenir les contacts entre les corporations professionnelles et le gouvernement;

- instituer un Conseil interprofessionnel du Québec ayant pour rôle de faire des recommandations à l'Office et au gouvernement.

Le bill 250 de même que d'autres projets de concordance relatifs à la loi des dentistes, au Barreau, à la loi médicale, aux notaires, et le reste, soit plus de vingt au total, seront immédiatement déferés à une commission parlementaire devant laquelle tous les intérêts pourront se faire entendre.

L'Office des professions du Québec sera composé de trois membres nommés par le gouvernement, pour une période n'excédant pas 10 ans, après consultation du conseil interprofessionnel. L'Office aura pour principales fonctions de:

- veiller à ce que chaque corporation professionnelle adopte un code de déontologie et détermine une procédure d'arbitrage des comptes de ses membres;

- s'assurer que certaines corporations professionnelles établiront un fonds d'indemnisation;

- faire enquête dans certaines circonstances sur l'administration financière des corporations professionnelles;

- faire rapport au gouvernement sur les corporations qui seront en difficulté financière ou qui ne rempliront pas leurs obligations, et de publier un recueil des décisions rendues en matière disciplinaire en vertu du code des professions.

Le conseil interprofessionnel du Québec sera formé du président ou d'un représentant de chacune des corporations professionnelles. Il aura pour principale fonction d'étudier les problèmes généraux des corporations professionnelles et de faire des recommandations à l'Office et au gouvernement à ce sujet.

Les deux organismes devront faire rapport de leurs activités avant le 1er juillet de chaque année au ministre chargé de l'application du code, et celui-ci devra le déposer à l'Assemblée nationale.

Un chapitre du bill 250 détermine les règles applicables aux corporations professionnelles, 34 au total pour l'instant.

Onze nouvelles corporations professionnelles sont constituées. Vingt-trois autres (dentistes, avocats, médecins, notaires, et le reste) sont constituées par une loi ou par des lettres patentes émises en vertu du code des professions.

Certains critères sont établis afin de déterminer si une corporation professionnelle sera constituée ou non à l'avenir et on précise, en particulier, que le droit exclusif d'exercer une profession ne pourra être accordé que par une loi, lorsque la protection du public l'exigera.

Les corporations professionnelles selon le bill, seront administrées par un Bureau formé d'administrateurs élus par les membres de la corporation et d'administrateurs nommés par le gouvernement, leur nombre variant suivant le nombre de membres de la corporation.

Les règlements du Bureau devront être soumis à l'approbation du gouvernement, de même qu'à celle de l'assemblée générale des membres de la corporation, dans certains cas. Un rapport annuel d'activités et l'état financier de la corporation seront transmis à l'Office des professions et au ministre, qui le déposera à l'Assemblée nationale.

Un bureau d'inspection professionnelle de trois membres (deux, nommés par le Bureau, un nommé par le gouvernement et qui en sera le secrétaire) sera formé au sein de chaque corporation.

De même, un comité de discipline formé de trois membres sera constitué au sein de chaque corporation. Le président, nommé par le gouvernement, devra être un avocat ayant au moins 10 ans de pratique; les deux autres seront désignés par la corporation parmi ses membres. Chaque décision du comité ou du tribunal (en cas d'appel devant trois juges de la Cour provinciale) sera transmise à l'Office des professions, qui fera publier dans la Gazette officielle du Québec les décisions définitives de radiation permanente ou de révocation de permis.

Le gouvernement pourra, en vertu de la future loi, adopter des règlements, notamment pour fixer des règles sur la publicité par les professionnels, pour reconnaître les diplômes donnant ouverture à un permis ou à un certificat de spécialiste, pour établir les modalités de la collaboration des corporations et des établissements d'enseignement à l'élaboration des programmes d'études conduisant à de tels diplômes, et pour approuver les tarifs d'honoraires professionnels.

Les infractions autres que celles donnant lieu à un recours disciplinaire seront punissables d'une amende de \$200 à \$2,000 à la suite d'une poursuite intentée par le procureur général ou la corporation intéressée.

Le code entrera en vigueur sur proclamation du conseil des ministres.

défrayer le coût elles-mêmes. Ce principe régit toutes les dispositions et toutes les recommandations de l'ADA en ce qui concerne un programme national d'assurance-maladie".

### La Suisse manque de praticiens

La Suisse est un des rares pays qui permettent à des étrangers d'exercer

la chirurgie dentaire. Elle manque en effet de praticiens (2,660 pour six millions d'habitants) et actuellement 490 d'entre eux n'ont pas la nationalité suisse.

Cette situation est due au type d'enseignement qui impose un "tronc commun" de longue durée avec les études médicales contrairement à la plupart des pays occidentaux. Elle serait due également au manque d'installations nécessaires pour la formation des étudiants.

Actuellement, l'Université de Genève ne peut former que 35 praticiens par an

alors que la Suisse Romande et le Tessin ont besoin de 65 à 100 diplômés par an. Le Conseil d'Etat Genevois prévoit de dépenser plus de 15 millions de Francs français pour la construction d'une école à Genève.

### Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire



Canadienne étaient les suivantes au 30 novembre 1971:

*Fonds à revenu fixe* \$12,570;

*Fonds d'actions ordinaires* \$22,413.

L'avoir total (valeur marchande) du régime se montait à \$10,324,095.50.

Au cours du mois précédent, les transactions ont été les suivantes: vente 4,500 actions de Reed Shaw Osler.

Le paragraphe 79B de la loi régissant l'impôt sur le revenu autorise des contributions non imposables à un programme de retraite personnelle, représentant jusqu'à 20 p.c. du revenu, avec un maximum de \$2,500.

La Compagnie Trust Royal, qui gère le Régime d'épargne-retraite de l'ADC offre deux sortes de placements distincts: un fonds à revenu fixe et un fonds d'actions ordinaires. Les contributions peuvent être faites entièrement ou en partie au(x) fonds que choisit le contributeur. Il peut faire des transferts entre les fonds sans payer d'amendes.

Le fonds à revenu fixe, qui se compose de bons du trésor, d'obligations, d'actions privilégiées et d'autres sécurités à revenu fixe, offre un très bon revenu avec un risque très faible. Le fonds d'actions ordinaires, qui se compose d'actions ordinaires canadiennes, américaines et étrangères soigneusement choisies, a comme objectif principal l'augmentation du capital.

L'adhésion au programme ou le retrait n'entraîne aucun paiement supplémentaire, ni commission.

Les cotisations au Régime d'épargne-retraite de l'ADC pour l'année fiscale 1971 doivent être versées avant le 29 février 1972. Les sommes reçues après cette date devront compter pour l'année 1972.

Les lecteurs sont donc priés d'envoyer dans les plus brefs délais leur cotisation directement à: Canadian Dental Service Plans Inc, 230 rue St. George, Toronto 180, Ont.

## Les organismes dentaires

### L'Association des hygiénistes en faveur de tâches élargies

Les hygiénistes dentaires du Canada ont donné leur appui à une section du rapport du Comité Wells qui viserait à étendre les services que peut rendre l'hygiéniste dentaire.

Une déclaration rendue publique par l'Association des hygiénistes dentaires canadiennes lors de son congrès annuel à Ottawa en octobre dernier indique que le groupe est d'accord sur la proposition qui permettrait aux hygiénistes dentaires ayant reçu la formation nécessaire d'appliquer la digue de caoutchouc, de placer un pansement sédatif, de prendre les empreintes pour

les modèles d'étude, de réparer les prothèses, de placer et d'enlever les matrices, de placer les bagues d'orthodontie, de préparer les cavités, de placer et de finir les restaurations au ciment, à l'amalgame, au silicate ou au plastique.

Mais l'AHDC s'oppose à toute nomenclature officielle de ces tâches dans les lois dentaires provinciales. Elle préfère au contraire que ces lois donnent une définition des tâches qui seraient interdites aux hygiénistes.

L'association a aussi déclaré que tous les travaux de restauration, de même que l'enseignement à l'hygiène dentaire, fassent partie d'un programme global de prévention. "Le traitement fait et devrait faire partie de la prévention", d'ajouter le commentaire.

### Le Dr Swanson à la tête des chirurgiens buccaux

A. E. Swanson, de Vancouver, a été choisi président de la Société canadienne des chirurgiens buccaux lors de la réunion annuelle de cet organisme à Ottawa, du 30 septembre au 1er octobre. La réunion avait eu lieu en liaison avec le congrès national de l'Association Dentaire Canadienne. Il succède à E. P. Millar de Montréal. Le Dr V. K. Seth, de Vancouver, a été nommé secrétaire-trésorier.

R. G. Topazian, professeur et responsable du Département de chirurgie buccale à la Faculté dentaire du Collège médical de Georgie, fut le conférencier invité. Le Dr Topazian qui a obtenu son diplôme de la Faculté dentaire de l'Université McGill en 1955 a discuté des récents progrès et de la recherche dans le traitement des mandibules atrophiées et l'augmentation de la crête alvéolaire à l'aide de la céramique poreuse et d'autres matériaux alloplastiques. Jorgen Rud, de Copenhague, Danemark, et président de l'Association internationale des chirurgiens buccaux s'est adressé aux invités lors du déjeuner qui a eu lieu avant la conférence en pathologie clinique.

La prochaine réunion annuelle de cette société se tiendra à Harrison Hot Springs, CB du 29 juin au 2 juillet 1972. A cette occasion le conférencier invité sera Robert Walker de l'Université du Texas.

## L'enseignement dentaire

### Plus de \$22,500 en contribution des dentistes au FCED

Un rapport daté du début novembre indique que plus de mille dentistes ont contribué au Fonds canadien pour l'en-

seignement dentaire cette année. De fait, selon Murray McDonald, directeur général du Fonds, plus de 200 dentistes ont contribué deux fois ou plus en 1971.

Le 31 octobre le montant total versé par les dentistes atteignait \$22,591, soit une hausse de 14 p.c. sur les chiffres obtenus l'an dernier à la même période. Si la tendance actuelle se poursuit jusqu'à la fin de l'année, d'ajouter M. McDonald, l'objectif minimum de la campagne de souscription qui est de \$26,500 sera dépassé de \$2,000.

Les dentistes qui n'ont pas encore répondu à l'appel du FCED sont priés d'envoyer leur contribution le plus tôt possible au FCED, 234 rue St-George, Toronto 180, Ont.

### Cours sur l'analgésie relative donné à Montréal

Les Drs Jacques Monette, de l'Université de Montréal et Kenneth Fordham, de l'Université de la Pennsylvanie donneront un cours sur l'analgésie relative par inhalation de protoxyde d'azote et d'oxygène, les 11 et 12 mars, au Grand Motor Hotel, 7700 Côte de Liesse, Montréal.

Ce cours bilingue insistera sur l'importance de l'analgésie relative en pratique dentaire et en particulier sur les avantages d'un tel procédé lorsque le dentiste traite les enfants. Des crédits seront accordés à ce cours d'analgésie par le Comité de l'éducation permanente du Collège des Chirurgiens-Dentistes du Québec.

Les frais d'inscription pour les dentistes est de \$125 (dîners inclus). Les assistantes dentaires pourront s'inscrire pour la somme de \$15. Pour renseignements supplémentaires et inscriptions, adressez-vous au Dr Jacques Monette, 2157 est rue Fleury, Montréal 360, Qué. (Tél 384-3720).

## L'économie

### Le Comité sénatorial sur la pauvreté désire que les services dentaires soient inclus dans l'assurance-maladie

Le Comité sénatorial sur la pauvreté a proposé le 10 novembre que les services dentaires ainsi que les médicaments requis sur ordonnance soient couverts par le système d'assurance-maladie du Canada.

Le rapport, qui est l'aboutissement de trois années de travail, a été présenté au Sénat par le Sénateur Croll, qui a qualifié ledit rapport de "grande charte pour les dépossédés".

Ce rapport insiste pour que tout l'ap-



pareil de l'assurance-maladie soit financé à même le revenu de l'état. Au niveau fédéral cela signifierait qu'aucun impôt supplémentaire ne serait imposé pour l'assurance-maladie. Au niveau provincial ceci mettrait fin aux frais et aux contributions que les provinces exigent pour financer les services de santé.

### **Le public se méfie du coût du régime d'assurance dentaire**

Le public favoriserait dans une proportion de 92 p.c. un programme de soins dentaires offert par le gouvernement "s'il n'était pas question du coût", c'est ce que révèle une enquête menée par des étudiants en art dentaire de l'Université de Toronto. Cependant, lorsqu'on suggérait des primes de l'ordre de \$10 à \$12 par mois, l'approbation du public redescendait à 43 p.c. seulement.

L'enquête montra aussi que 81 p.c. des dentistes de l'Ontario étaient en faveur d'un tel programme en principe, mais plusieurs insistèrent sur le coût élevé du projet s'il fallait d'un seul coup étendre le programme à tous les soins dentaires pour toute la population.

Ces informations nous parviennent d'une enquête menée l'été dernier auprès de 700 personnes de Toronto et de 150 personnes de Welland. Plus de la moitié des 3,300 dentistes de l'Ontario répondirent aussi au questionnaire.

Rendue possible grâce à un octroi de \$11,500 et ce, dans le cadre de Perspective-Jeunesse, cette enquête indiqua que 53 p.c. du public préférerait bénéficier d'un régime de soins dentaires gratuits plutôt que recevoir une augmentation de salaire si leur patron leur demandait de choisir.

De plus, 52 p.c. déclarèrent qu'ils préféreraient un régime gouvernemental pendant que 29.7 p.c. optaient pour un régime d'assurance privé.

On remarqua de plus qu'un programme de soins dentaires financé publiquement par le gouvernement trouvait ses défenseurs surtout parmi les gens ayant un niveau d'instruction plus élevé. Parmi les dentistes, les plus jeunes étaient plus favorables à ce plan que leurs collègues plus âgés. Cependant, plusieurs mirent en doute l'étendue des soins couverts par l'assurance, exprimant l'opinion qu'un programme complet serait trop coûteux.

### **L'information et la publicité au service des nouveaux programmes de soins dentaires**

Afin d'informer le public de la mise en

vigueur des programmes de médicaments et de soins dentaires, la Régie de l'assurance-maladie a élaboré un programme de relations publiques qui s'échelonne sur environ quatre mois et dont les éléments-clés sont les suivants:

**Communiqués de presse** — Une douzaine de communiqués seront émis, traitant entre autres de l'inscription des dentistes, des pharmaciens et des professionnels de la santé autorisés à dispenser des médicaments, des ressources humaines et de l'équipement informatique requis pour cette extension de la couverture du régime, de la liste des médicaments et de la mise en vigueur.

**Imprimés** — La Régie distribuera dans tous les foyers du Québec une brochure de renseignements généraux et mettra de plus à la disposition du public un dépliant résumant les modalités du régime et mettant en lumière les nouveaux services assurés.

**Causeries** — Plusieurs causeries seront prononcées devant des publics spécialisés. Le bilan du régime et les deux nouveaux programmes de services assurés seront les principaux thèmes développés.

**Campagne de publicité** — Par le truchement des différents média, cette campagne visera à éveiller tous les publics aux deux importantes additions au régime d'assurance-maladie. Elle les informera sur la mise en vigueur des programmes et les modalités qui leur sont propres, montrera l'ensemble des services couverts par le régime et indiquera aux bénéficiaires comment se procurer des renseignements supplémentaires.

### **Nouveau régime dentaire offert en Nouvelle-Ecosse**

La Corporation des services dentaires de la Nouvelle-Ecosse et la "Maritime Medical Care Inc" ont signé un accord qui offrira un régime conventionnel de soins dentaires aux groupes qui le désireront. Différents types de soins dentaires peuvent être couverts par cette assurance qui offre par conséquent diverses sortes de primes et bénéfices.

Le régime couvre le coût total du diagnostic et des soins préventifs.

Les extractions, les restaurations, les traitements endodontiques et périodontaires seront couverts à 70 p.c.

Les prothèses, comprenant les ponts et les prothèses complètes seront couvertes à 50 p.c.

Le régime a reçu l'approbation de l'Association Dentaire de la Nouvelle-Ecosse, et est rendu possible par une

entente conjointe signée par la Corporation des services dentaires de la Nouvelle-Ecosse et par la "Maritime Medical Care Inc". MMC mettra le programme en marché et l'administrera.

On pense que les cotisations mensuelles à verser par un célibataire seront de \$5.82 et de \$13.68 pour une famille complète.

Les soins orthodontiques pourront être ajoutés au régime en option supplémentaire.

### **Les employés de la compagnie Ford affiliés aux TUA bénéficieront d'un régime dentaire conventionné**

Aux Etats-Unis les employés de la Compagnie Ford, représentés par les Travailleurs unis de l'automobile, ont choisi le système "Delta Dental Plan" comme programme volontaire de soins dentaires conventionnés.

Le financement de ce programme de soins dentaires offert aux membres des TUA et à leur famille, en opération depuis le 1er janvier 1972, est assuré par un mécanisme de déduction volontaire sur le salaire, mode de financement qui fut accepté après négociations entre les TUA et la compagnie Ford l'an dernier. Ce programme offre l'ensemble des services essentiels, qui peuvent être complétés ou modifiés selon les besoins des individus.

### **La Colombie-Britannique accepte de nouveau le certificat du BNED**

Les dentistes qui possèdent le certificat du Bureau national d'examen dentaire et qui ont obtenu leur diplôme d'une faculté dentaire canadienne reconnue seront de nouveau éligibles à s'inscrire en Colombie-Britannique sans autre examen supplémentaire.

C'est là un retour à une prise de position qui existait en Colombie-Britannique de 1957 à 1968.

### **La recherche**

#### **Nouvelle méthode de fixer les dents en acryl sur la base de prothèse**

Les scientifiques du US National Bureau of Standards ont mis au point une nouvelle méthode pour fixer les dents en plastique, les empêchant ainsi d'être délogées de la base de prothèse



en plastique. Les dents sont trempées dans une solution de deux parties égales de chlorure de méthylène et de monomère de méthacrylate de méthyle à polymérisation à froid pendant cinq minutes.

Cette nouvelle méthode est beaucoup plus simple que la pratique courante qui consiste à faire des rainures rétentives dans les dents qui sont ainsi retenues de façon mécanique et ensuite à recouvrir les dents d'un monomère. La fixation ainsi obtenue est aussi plus résistante. Des tests en laboratoire ont prouvé que sous une contrainte extrême c'était les dents qui se fêlaient, mais la fixation ne subissait aucune fracture.

### Un autre type de bactérie attaque l'os, provoque la carie

Des enquêteurs du Forsyth Dental Centre de Boston, ont à partir d'une plaque humaine, isolé un spécimen de streptocoque ressemblant au *S. Salivarius*, et qui cause une altération grave de l'os maxillaire ainsi que la carie dentaire lorsqu'il est inoculé dans la bouche de rats préalablement aseptisés. Les cellules inflammatoires caractéristiques présentes lors de la résorption de l'os alvéolaire ne furent point visibles dans cette infection.

Les scientifiques Jens Kelstrup et R. G. Gibbons, déclarent que le streptocoque, connu sous le nom de spécimen 1A est capable de produire une plaque solide, claire et collante, à la fois au-dessus et au-dessous de la ligne des gencives. La dispersion de la plaque dépend jusqu'à un certain point de l'alimentation du rat.

Le spécimen 1A se développera et produira des acides sur un certain nombre de sucres comprenant le levain qu'il synthétise d'ailleurs, peut-être pour l'utiliser comme réserve alimentaire lorsque des sucres à formule plus simple ne sont pas disponibles. Cependant la saccharose est le seul substrat à partir duquel il produit un polysaccharide collant, à densité moléculaire élevée, apparemment un glucan similaire au dextran.

Le polysaccharide produit par ce spécimen 1A à partir du sucre de table non seulement colle aux gencives et aux dents, mais force les cellules 1A formées sur ce morceau de sucre à se grouper en masses compactes. Cependant il n'agglutine pas ces bactéries si elles se sont développées sur d'autres sucres. Cette aggrégation de bactéries les unes aux autres et aux tissus de la bouche en une fine plaque leur permet de se concentrer en nombre suffisant et

pour un temps assez long pour que leurs acides endommagent le tissu.

Cette nouvelle découverte met fin à la croyance populaire voulant que la plupart des micro-organismes buccaux vivant sous la ligne des gencives et qui produisent une plaque sur les racines des dents ou contribuent à l'inflammation des gencives ainsi qu'à la perte de l'os alvéolaire ont, soit la forme d'un filament, soit la forme d'une tige, pendant que ceux qui produisent les caries au-dessus de la ligne des gencives, soit dans les sillons gingivo-dentaires, soit sur les surfaces lisses des dents sont ronds et en forme de coque.

### La reformation de l'os peut aider les personnes édentées

Deux enquêteurs américains ont déclaré avoir obtenu un certain succès dans la reformation de l'os. Cette découverte laisse entrevoir un certain espoir pour les personnes édentées ou les victimes d'accidents dont les os ont été brisés.

Marshall Urist, de l'Université de la Californie à Los Angeles, a découvert que l'implantation de morceaux d'os déminéralisés agirait sur le développement d'un nouvel os, et ce même dans un muscle où l'on ne trouve pas normalement d'os.

Plus récemment encore, Herbert Wells et ses associés de l'Université de Boston, School of Graduate Dentistry, en mettant en évidence les différentes utilisations possibles de l'os déminéralisé (facile à obtenir et à sculpter) se sont servis d'un os traité préalablement et prélevé sur un chien pour remplir les trous d'une mâchoire de chien; ils se sont également servis d'os de rat pour combler de larges fissures dans les os de la patte d'un rat.

Les greffons furent uniformément acceptés et en deux mois, un nouvel os, en tout point (même au microscope) semblable à l'os original avait remplacé le greffon et masqué le défaut.

Lorsque le Dr Wells décida d'utiliser l'os déminéralisé provenant d'une autre espèce, il découvrit que 45 p.c. de ces greffons étaient retenus, et entreprenaient le lent processus de la reformation osseuse, tandis que 55 p.c. des autres greffons étaient bel et bien rejetés. De toute évidence la matrice organique de l'os est un puissant catalyseur dans la formation d'un nouvel os.

Cette recherche, qui vient appuyer les résultats d'un rapport précédent sur l'utilisation clinique d'un os décalcifié dans trois cas différents, laisse entrevoir la possibilité qu'un jour l'os humain, lorsque traité, pourra servir à la formation d'un nouvel os. En ce moment on ne peut en aucun cas assurer que le corps humain puisse rétablir à

la fois l'apparence et la fonction perdues lorsque de grandes parties d'os ont été détruites, soit par maladie, soit dans un accident. De plus seul un os prélevé ailleurs sur la même personne semble capable de réparer les dommages en question.

Le remplacement de l'os alvéolaire intéresse particulièrement les dentistes puisque les maladies péri-dentaires causent une résorption et que l'os alvéolaire tend aussi à diminuer sous la pression d'une prothèse, la rendant ainsi difficile à supporter.

### Des éléments chimiques dans l'eau reliés à la réduction de la carie

Lors de l'assemblée scientifique annuelle de l'Association Dentaire Américaine qui s'est déroulée à Atlantic City en octobre dernier, un scientifique a déclaré que certains éléments que l'on trouve dans l'eau potable sont, en plus des fluorures, susceptibles d'avoir un certain effet sur la prédisposition des dents à la carie dentaire.

Fred Losee de Rochester, New York, a annoncé que certains éléments chimiques tel que le molybdène, le strontium, le bore et le lithium, peuvent causer l'inhibition de la carie. D'autres éléments tels que le cuivre et le plomb semblent au contraire favoriser le développement de la carie.

Certains éléments peuvent accroître l'efficacité du fluorure en rendant l'émail dentaire beaucoup plus résistant, de dire le Dr Losee. Les scientifiques poursuivent leurs recherches dans le but de découvrir d'autres facteurs qui pourront peut-être augmenter les effets de la fluoration, a-t-il ajouté.

### Nominations

Un orthodontiste de Montréal, le Dr H. T. Oliver a été nommé président de la Northeastern Society of Orthodontists au congrès annuel de cette association qui s'est déroulé à New-York du 3 au 6 novembre dernier. Le Dr Oliver est conférencier à l'Université McGill et est attaché au Montreal Children's Hospital, au Shriners Hospital et au Catherine Booth Hospital. Il est aussi ancien président de l'Association canadienne des orthodontistes. La Northeastern Society of Orthodontists qui constitue la partie la plus importante de l'Association américaine des orthodontistes, recrute ses membres dans les Provinces atlantiques, le Québec et dans les états de la Nouvelle-Angleterre.



## Produits intermédiaires d'obturation soumis au test biologique normalisé

L. J. Baume, DMD, MSD  
J. Holz, DMD  
G. Fiore-Donno, MD  
Genève, Suisse

*Le choix d'un produit intermédiaire d'obturation dépend de sa compatibilité avec les matériaux employés et des effets nocifs possibles de ces derniers sur la pulpe. Les auteurs ont effectué des épreuves biologiques selon un procédé normalisé sur des dents coiffées aux ciments ZOE (SSW) et Hydrex (Kerr). L'Hydrex n'a été toléré que dans quatre cas, alors que cinq cas présentaient une réaction "modérée" et 11 une réaction "sévère".*

*Cavity liners should be compatible with restoration materials and must also shield the pulp against toxic effects engendered by a filling. Lining materials must themselves be free of deleterious effects on the pulp. Comparative tests with two such materials revealed a much higher tolerance for a zinc oxide-eugenol preparation (SSW) than for a calcium hydroxide cement (Hydrex, Kerr).*

*La normalisation des essais biologiques* — Dans un passé assez proche, on se souciait peu des réactions biologiques de la pulpe à l'égard des matériaux de restauration dentaire. Les nécroses pulpaires observées après la pose de silicates ont suscité — dans le courant des années quarante — les premières études systématiques concernant les réactions pulpaires à l'égard des divers ciments. Mais les données recueillies par les différents auteurs étaient souvent contradictoires par manque de normes biologiques internationalement reconnues, comme les "spécifications" par exemple, qui précisent les qualités physico-chimiques requises pour les produits dentaires (Holz, Fiore-Donno et Baume).<sup>1</sup>

Depuis les années cinquante, la méthodologie des essais biologiques a subi une nette amélioration, surtout sous l'instigation de Kramer,<sup>2</sup> Langeland,<sup>3</sup> Marsland et Shovelton,<sup>4</sup> Brännström<sup>5</sup> ainsi que Stanley<sup>6</sup> parmi d'autres. De nos jours cependant, le point faible de ces essais biologiques reste le manque d'uniformité dans la procédure qui empêche la généralisation des données recueillies. Se basant sur leurs expériences portant sur quelque 600 dents ainsi que sur les données rapportées dans la littérature, Baume, Fiore-Donno et Holz<sup>7, 8</sup> viennent de proposer une normalisation des essais biologiques, en uniformisant la procédure et en établissant des critères bien définis d'évaluation histopathologique.

*Le traitement de l'interface* — En ce qui concerne les effets biologiques de différents produits d'obturation, il faut considérer non seulement la réaction immédiate de la pulpe à leur égard, mais aussi leurs effets à longue échéance, lesquels dépendent de l'étanchéité de l'obturation. On a contrôlé l'herméticité par la pénétration de colorants; puis on a appliqué l'autoradiographie par la diffusion d'isotopes.<sup>9</sup> Tout récemment, le microscope électronique "à balayage" a permis de mettre en évidence des espaces entre l'obturation et la paroi de la cavité.<sup>10</sup>

Nous basant sur le fait que nul produit d'obturation définitive actuellement à disposition n'assure une adhésion réelle à la paroi de la cavité, nous avons dû admettre l'existence d'une interface. Massler<sup>11</sup> a été l'un des premiers auteurs à insister sur la nécessité d'isoler cet espace contre toute pénétration de substances nocives pour la pulpe. Bien que le développement des techniques de coiffage pulpaire ait inauguré une nouvelle ère du traitement vital de la pulpe et de la prévention active des pulpopathies, on n'est arrivé que récemment à définir de façon scientifique l'indication et la sélection des dits produits intermédiaires d'obturation (Phillips et al).<sup>12</sup> Les fonctions de ces produits devraient être les suivantes:

1. *Panser* la plaie dentinaire et isoler les tissus vivants contre des influences chimique, électrique et thermique;

2. *Assurer le joint* de l'interface cavité-obturation pour prévenir les infiltrations et améliorer l'étanchéité marginale de certains produits d'obturation;

3. *Appliquer un traitement* médicamenteux aux inflammations pulpaires existantes.

Nous disposons actuellement de deux types d'isolants: les vernis qui produisent un film après évaporation, et les pâtes et ciments qui produisent une couche ou un fond solide. Le tableau 1 est la version française de la classification et terminologie couramment utilisée



|                                                                                                  |
|--------------------------------------------------------------------------------------------------|
| 1. Isolants dentinaires liquides                                                                 |
| (a) vernis simples résineux—"varnish"                                                            |
| (b) vernis composés (suspension résineuse ou cellulosique de Ca (OH) <sub>2</sub> ou ZnO—"liner" |
| 2. Isolants dentinaires solides                                                                  |
| (a) fonds de ciment (non acides)—"base"                                                          |
| (b) coiffage pulpaire indirect—"capping base"                                                    |
| 3. Isolants dentinaires collants—"sealants"                                                      |
| (a) adhésifs à base de résine cyanoacrylique avec traitement préalable à l'acide                 |
| (b) adhésifs à base de polyméthane sans traitement préalable                                     |
| (c) ciments chélateurs                                                                           |

en anglais.<sup>12</sup> Avec la venue de vrais adhésifs assurant une liaison chimique avec la paroi dentaire, il a fallu ajouter une troisième catégorie de produits intermédiaires: les "collants" (sealants).<sup>13, 14</sup> Du fait que plusieurs de ces derniers produits exigent un traitement préparatoire à l'acide fort, la première condition préalable à toute indication pour ce genre de produit sera plus que jamais l'innocuité à l'égard de la pulpe. Il faudra, bien entendu, que cette qualité ait été auparavant mise en évidence par des tests biologiques basés sur une procédure normalisée.

Le but de la présente étude est d'évaluer à l'aide d'une procédure normalisée<sup>8</sup> les effets biologiques de deux isolants solides: l'Hydrex et le ZOE.

Matériaux et méthodes

**Produits** — Le ZOE (SSW) "package No 4" est un ciment à l'oxyde de zinc eugénol dit "perfectionné" pour fond de cavité et protection pulpaire, qui ne figure cependant pas dans la liste ADA de préparations approuvées.<sup>15</sup> Le temps de prise est lent — de huit à 10 minutes — si le mélange, malaxé pendant 90 à

120 secondes, est mesuré au moyen du doseur de poudre et du compteur de gouttes.

L'Hydrex (Kerr) se réclame comme devant être classé parmi les isolants solides composés à base d'hydroxide de calcium. Toutefois, une résine autopolymérisante dite "selected" est incorporée pour permettre une prise rapide. Le mélange a été effectué selon les indications du producteur.

**Matériel**—Quarante prémolaires cliniquement intactes, destinées à l'extraction pour des raisons orthodontiques ont été utilisées.

Le groupe 1 comprenait 20 dents dont les parois dentinaires des cavités-tests étaient isolées par une épaisse couche de ZOE, et obturées au "Kryptex Improved" (SSW). Aucun des patients n'avait signalé de symptomatologie postopératoire.

Le groupe 2 comprenait 20 dents controlatérales du groupe 1, selon le schéma croisé du tableau 2, assurant de la sorte une parfaite distribution au hasard. Les cavités-tests avaient été munies d'une couche d'Hydrex recouverte d'une couche de ZOE avant d'être obturées au Kryptex improved. Plusieurs patients ont signalé de légères douleurs spontanées et localisées.

**Méthodes** — Les méthodes normalisées de préparation de cavité, technique d'histologie et évaluation histopathologique ont été suivies, comme décrit précédemment.<sup>8</sup> L'épaisseur moyenne de la dentine résiduelle était de mm 1.06 dans le groupe 1 et mm 0.96 dans le groupe 2. Les périodes postopératoires comprenaient 32, 120 et 200 jours. Le tableau 3 résume les critères requis pour les quatre indices permettant d'apprécier l'intensité de la réaction pulpaire. Toutefois, les critères ont dû être complétés par l'incidence de processus spécifiques au niveau du stroma pulpaire, en l'occurrence une "vacuolisation"; cette réaction a été jugée "modérée" lorsque quelques petites vésicules affectaient la couche odontoblastique en présence de leucocytes,<sup>7</sup> et "sévère" en présence de larges "vacuoles"

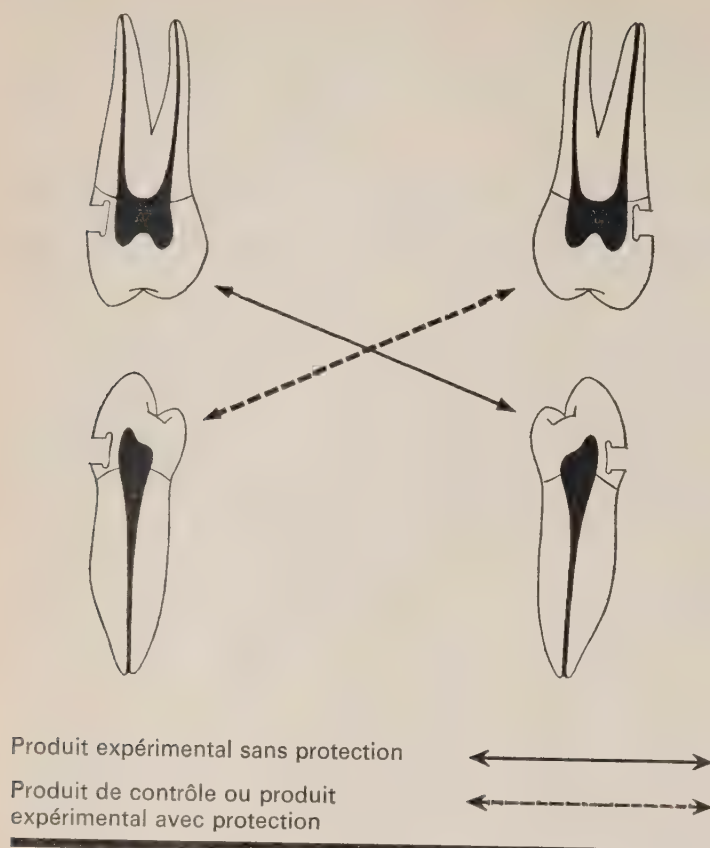
Critères pour indices d'intensité des réactions pulpaires      Tableau 2

| Réaction      | Critères                                  | Intensité de la réaction pulpaire |                                                   |                                 |                               |
|---------------|-------------------------------------------|-----------------------------------|---------------------------------------------------|---------------------------------|-------------------------------|
|               |                                           | "légère"                          | "modérée"                                         | "sévère"                        | "très sévère"                 |
| Dégénérative  | Couche odontoblastique*                   | peu réduite en nombre             | réduite en nombre et forme                        | disparue sur courte distance    | disparition étendue           |
|               | Tubuli dentinaires au niveau de la pulpe* | condition normale                 | noyaux aspirés d'odontoblastes                    | hématies et leucocytes          | amas nécrosés                 |
|               | Dentinogenèse*                            | régulière normale                 | irrégulière accrue                                | arrêtée                         | arrêtée                       |
| Inflammatoire | Type d'inflammation                       | localisée débutante               | localisée aiguë ou chron.                         | localisée abcédante             | généralisée phlegmoneuse      |
|               | Infiltration leucocytaire                 | clairsemée                        | localisée clairsemée                              | diffuse abondante               | généralisée abondante         |
| Toxique       | Vacuolisation*                            | interodontoblastique              | subodontoblastique avec infiltration leucocytaire | bulles tapissées de macrophages | larges foyers de liquéfaction |

\*Dans la région pulpaire intéressée par la cavité



Quatre dents homologues d'un même sujet



tapissées de plasmocytes. La documentation iconographique de ce travail est basée sur des microphotographies de coupes sagittales-médianes montrant la plus petite distance cavité/pulpe de la série.

## Résultats

## Groupe 1:

**ZOE** — Selon les indices récapitulés dans le tableau 4, la majorité des pulpes présentaient une réaction "légère", aucune pulpe n'ayant été affectée sévèrement. Dans sept pulpes sur 20, on a constaté une réaction "modérée" due à l'infiltration de quelques cellules inflammatoires. Les données du tableau montrent que ni l'épaisseur de la dentine résiduelle ni la période postopératoire ne peuvent être mises en relation avec cette réaction. Il faut également remarquer qu'à trois occasions seulement, une couche de dentine tertiaire a été enregistrée.

La bonne compatibilité du ZOE avec la pulpe est démontrée dans une paire de prémolaires controlatérales, examinées 200 jours après l'obturation (Fig 1A, 2A). L'ensemble de la pulpe des deux dents a un aspect dit normal. Il y a continuité parfaite de la couche odontoblastique, sans aucune apposition de dentine tertiaire. La vascularisation paraît également sans particularité. A plus fort grossissement, on note à l'endroit des obturations la régularité des couches de prédentine, des couches odontoblastiques et des couches de Weill (Fig 1B, 2B). La pulpe de la dent homologue de celle de la figure 2 présente, dans les figures 3A et 3B, l'aspect d'une réaction "modérée". L'ensemble de la pulpe paraît absolument régulier, à l'exception d'un endroit circonscrit correspondant à la paroi gingivale de la cavité (probablement non recouverte de ZOE). A plus fort grossissement, on perçoit une "colline" de dentine tertiaire, de type tubulaire, revêtue d'une seule et épaisse couche odontoblastique. Au voisinage immédiat, les veinules sont dilatées et il y a infiltration de quelques lymphocytes et plasmocytes.

## Groupe 2:

**Hydrex** — La réaction pulpaire à l'égard de l'Hydrex

Données histologiques. Group 1: ZOE + Kryptex

Tableau 4

| No du patient | No de la dent* | Age du patient | Nombre jours post-opératoires | Dentine résiduelle (microns) | Indice de réaction pulpaire† | Epaisseur dentine (microns) | No figure du texte |
|---------------|----------------|----------------|-------------------------------|------------------------------|------------------------------|-----------------------------|--------------------|
| 1             | 14             | 10             | 32                            | 1050                         | légère                       |                             |                    |
| 2             | 34             | 10             | 32                            | 970                          | modérée                      |                             |                    |
| 3             | 45             | 11             | 32                            | 1070                         | légère                       |                             |                    |
| 4             | 14             | 11             | 32                            | 1090                         | légère                       |                             |                    |
| 5             | 14             | 18             | 32                            | 1170                         | modérée                      |                             |                    |
| 6             | 34             | 18             | 32                            | 970                          | modérée                      |                             |                    |
| 7             | 44             | 18             | 32                            | 1050                         | modérée                      |                             |                    |
| 8             | 24             | 18             | 32                            | 800                          | modérée                      |                             |                    |
| 9             | 14             | 11             | 120                           | 1350                         | légère                       | 25                          |                    |
| 10            | 34             | 11             | 120                           | 1050                         | légère                       | 45                          |                    |
| 11            | 44             | 15             | 120                           | 980                          | légère                       |                             |                    |
| 12            | 24             | 15             | 120                           | 850                          | légère                       |                             |                    |
| 13            | 24             | 13             | 120                           | 910                          | légère                       |                             |                    |
| 14            | 44             | 13             | 120                           | 660                          | modérée                      |                             |                    |
| 15            | 34             | 13             | 120                           | 710                          | légère                       |                             |                    |
| 16            | 14             | 13             | 120                           | 830                          | légère                       |                             |                    |
| 17            | 14             | 12             | 200                           | 950                          | légère                       |                             | 1                  |
| 18            | 34             | 12             | 200                           | 840                          | légère                       |                             | 2                  |
| 19            | 44             | 12             | 200                           | 940                          | modérée                      | 35                          | 3                  |
| 20            | 24             | 12             | 200                           | 900                          | légère                       |                             |                    |

\*Identification FDI

†Selon Baume et Fiore-Donno 1970<sup>7,8</sup>



| No du patient | No de la dent* | Age du patient | Nombre jours post-opératoires | Dentine résiduelle (microns) | Indice de réaction pulpaire† | Epaisseur dentine (microns) | No figure du texte |
|---------------|----------------|----------------|-------------------------------|------------------------------|------------------------------|-----------------------------|--------------------|
| 1             | 24             | 10             | 32                            | 1340                         | sévère                       |                             |                    |
| 2             | 44             | 10             | 32                            | 1100                         | sévère                       |                             |                    |
| 3             | 34             | 11             | 32                            | 1380                         | modérée                      |                             |                    |
| 4             | 14             | 11             | 32                            | 950                          | sévère                       |                             |                    |
| 5             | 14             | 18             | 32                            | 1250                         | modérée                      |                             |                    |
| 6             | 44             | 18             | 32                            | 1370                         | sévère                       |                             | 5                  |
| 7             | 34             | 18             | 32                            | 1150                         | sévère                       |                             | 4                  |
| 8             | 14             | 18             | 32                            | 2030                         | légère                       |                             |                    |
| 9             | 24             | 11             | 120                           | 530                          | sévère                       |                             |                    |
| 10            | 44             | 11             | 120                           | 1200                         | modérée                      | 30                          |                    |
| 11            | 34             | 15             | 120                           | 1110                         | sévère                       | 50                          | 6                  |
| 12            | 24             | 10             | 120                           | 1450                         | modérée                      |                             |                    |
| 13            | 14             | 13             | 120                           | 530                          | légère                       |                             |                    |
| 14            | 34             | 13             | 120                           | 680                          | légère                       |                             |                    |
| 15            | 44             | 13             | 120                           | 840                          | légère                       |                             | 8                  |
| 16            | 24             | 13             | 120                           | 800                          | légère                       |                             | 9                  |
| 17            | 24             | 12             | 200                           | 1100                         | sévère                       |                             |                    |
| 18            | 44             | 12             | 200                           | 980                          | sévère                       |                             |                    |
| 19            | 34             | 12             | 200                           | 710                          | sévère                       |                             |                    |
| 20            | 24             | 12             | 200                           | 810                          | sévère                       |                             |                    |

\*Identification FDI

†Selon Baume et Fiore-Donno 1970<sup>7,8</sup>

était, selon le tableau 5, "sévère" dans la majorité (11 sur 20), "modérée" dans cinq cas, alors que dans deux cas elle était "légère". On note une persistance de la réaction "sévère" après une période postopératoire prolongée, mais il n'y a pas de rapport strict avec la proximité de la pulpe.

L'image histologique de la réaction "sévère" d'une pulpe, 32 jours après coiffage indirect, est présentée sur la figure 4. A l'endroit correspondant à l'angle gingivo-axial de la cavité, on constate la présence de plusieurs bulles de dimensions variables. Le tissu environnant est lâche et se trouve dans un état d'hyperémie. A plus fort grossissement, on discerne plusieurs macrophages tapissant la paroi des vacuoles qui sont complètement exemptes de toute trace de liquide. Cependant, la présence d'une certaine pression expansive est suggérée par l'aplatissement des macrophages pariétaux d'une part, et par l'empreinte des vésicules dans la dentine tertiaire d'autre part. La figure 5 présente une situation presque identique dans la pulpe de la dent homologue. Une grande partie du tissu avoisinant a un aspect lâche. L'ensemble de la pulpe est hyperémique.

La persistance du processus toujours situé dans la zone intéressant l'angle gingivo-axial de la cavité est proposée par les images obtenues 120 jours après l'obturation; dans le cas de la figure 6, la réaction est "sévère", et dans celui de la figure 7 "modérée". A plus fort grossissement, dans la figure 7B, on voit que les bulles n'épousent pas la dentine et n'intéressent que la région sous-odontoblastique. On trouve des macrophages aussi bien à l'intérieur qu'à l'extérieur des parois vacuolaires.

Une meilleure tolérance à réaction "légère" a été rencontrée dans les quatre prémolaires (no 13-16, Ta-

bleau 5) d'un autre patient. Dans la pulpe de la figure 8, on ne peut signaler aucune irrégularité. C'est seulement à plus fort grossissement que l'on note quelques très petites vacuoles au niveau de la couche odontoblastique. La couche de pré-dentine est cependant assez régulière.

Un phénomène semblable est constaté dans la pulpe de la dent controlatérale (Fig 9). A l'endroit de la paroi axiale de la cavité (Fig 9B), il y a quelques petites vacuoles et irrégularités dans la dentinogenèse, mais, à un endroit inférieur, les structures sont complètement régulières (Fig 9C).

## Discussion

Malgré l'utilisation répandue de l'Hydrex, il n'existe —à notre connaissance— que trois communications relatives aux effets biologiques de ce produit intermédiaire de protection pulpaire. Sayegh et Reed<sup>16</sup> ont analysé histologiquement 34 pulpes de dents antérieurement intactes dont 21 ont subi un coiffage indirect et 13 un coiffage direct à l'Hydrex. Pour le contrôle, 40 dents étaient coiffées au ZOE, dont 12 directement et 28 indirectement. Les périodes postopératoires comprenaient une, trois et huit semaines. Les auteurs ont présenté en bloc les résultats pour chaque matériau appliqué, sans différencier les effets du coiffage direct de ceux du coiffage indirect. Probablement à cause de cette confusion expérimentale, ils sont arrivés à la conclusion que l'Hydrex était relativement mieux toléré que le ZOE. Ils mentionnent cependant une "vacuolisation" dans la couche odontoblastique après coiffage indirect à l'Hydrex.



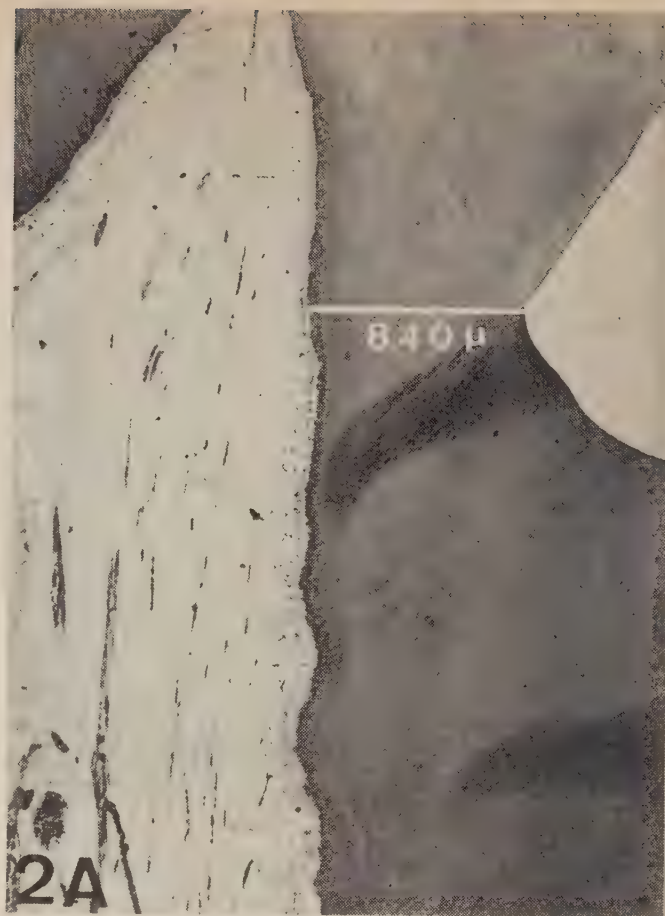
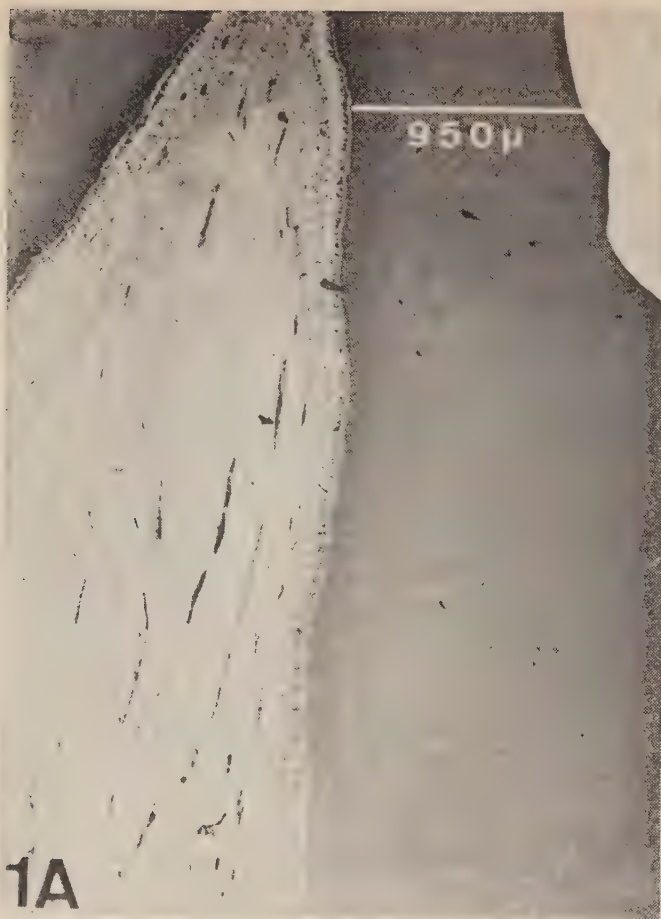


Fig 1 Dent 14 d'un sujet de 12 ans, 200 jours après coiffage pulpaire indirect au ZOE (Groupe 1), montrant une pulpe aux structures régulières sans formation de dentine réactionnelle, classée réaction "légère". H.E. Fig 1A x30. Fig 1B x300.

Fig 2 Dent controlatérale 34 du même sujet que figure 1 (Groupe 1), montrant la même réaction pulpaire dite "légère". H.E. Fig 2A x30. Fig 2B x300.



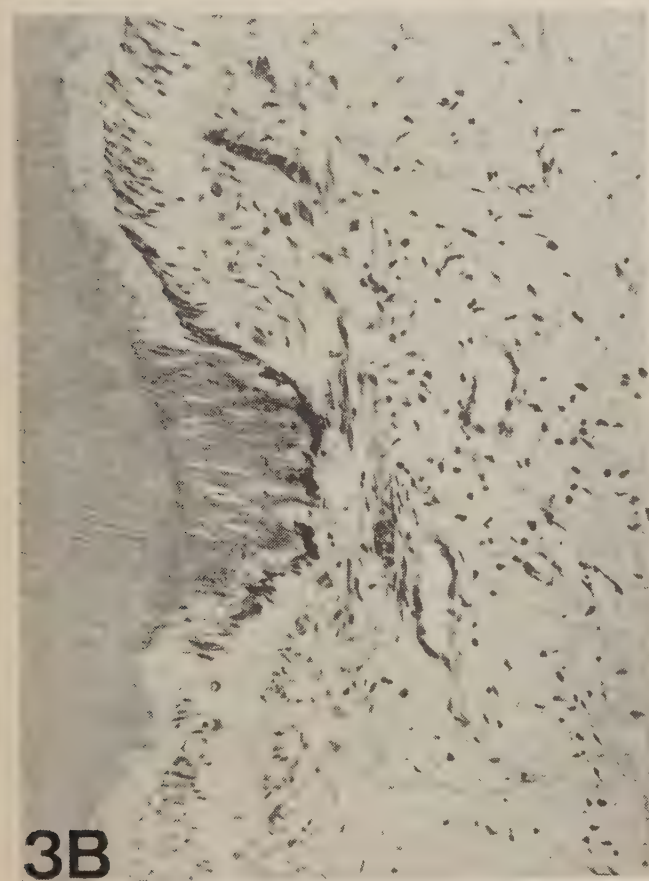
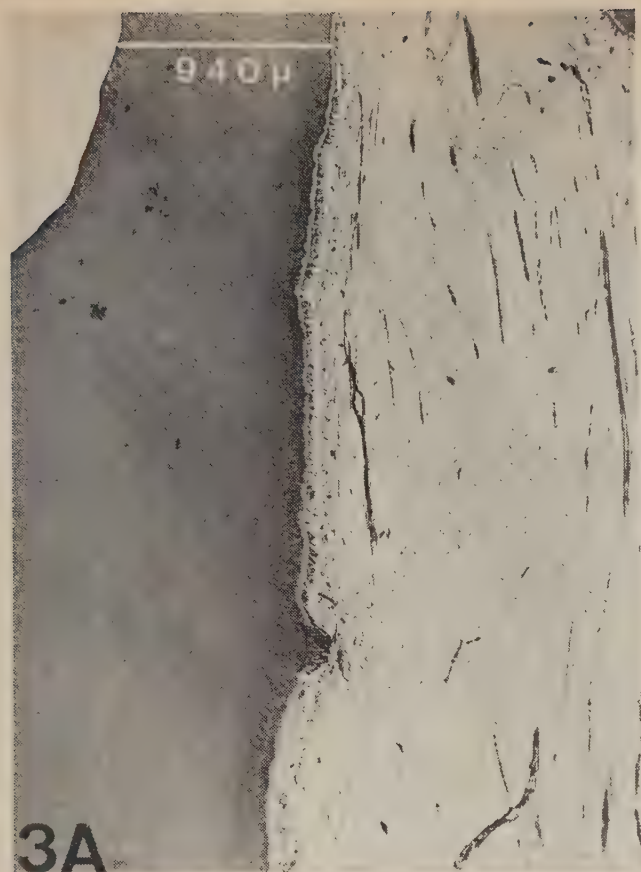


Fig 3 Dent homologue 44 du même patient que figure 2, montrant une réaction pulpaire "modérée", caractérisée par une apposition de dentine réactionnelle et une inflammation chronique, circonscrites à la région pulpaire en relation avec le plancher gingival de la cavité (peut-être non recouvert de ZOE). H.E. Fig 3A x30. Fig 3B x300.

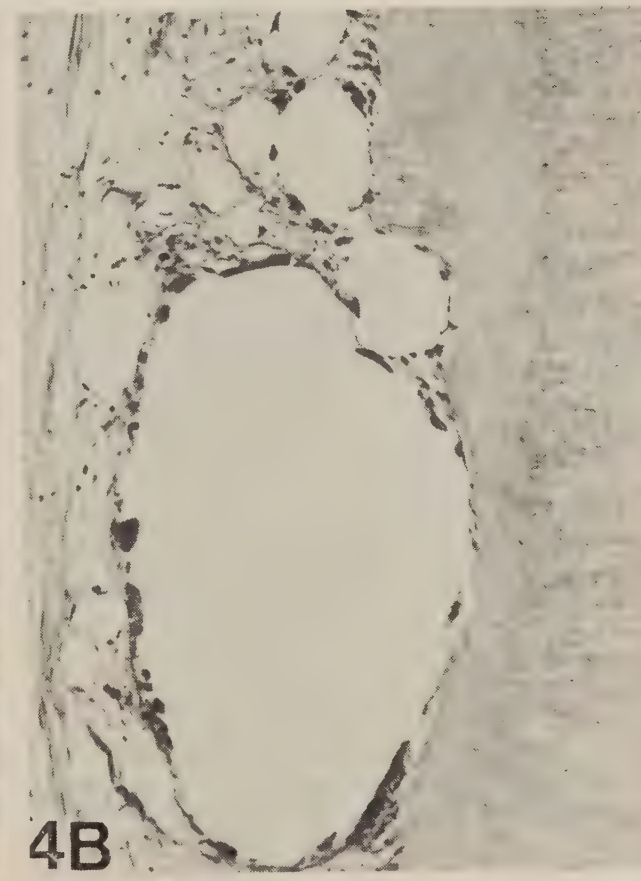
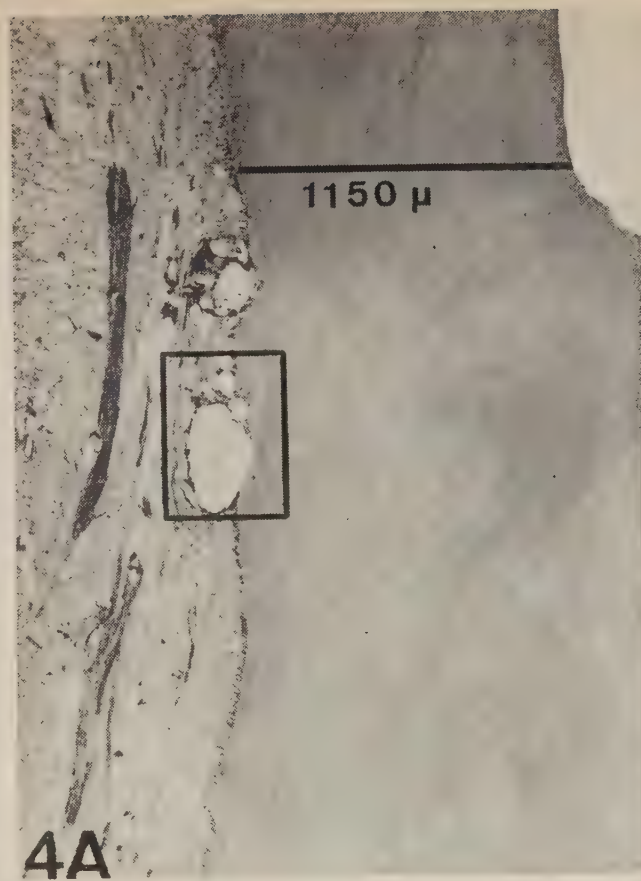


Fig 4 Dent 34 d'un sujet de 18 ans, 32 jours après coiffage pulpaire indirect à l'Hydrex (Groupe 2), montrant la formation de bulles tapissées de macrophages et entourées de plasmocytes épousant la dentine réactionnelle. La réaction est jugée "sévère". H.E. Fig 4A x35. Fig 4B x180.





Fig 5 Dent antagoniste 44 du même sujet que figure 4, montrant le même type de réaction vacuolaire à l'endroit correspondant à l'angle gingivo-axial de la cavité. A noter l'aspect lâche du stroma pulpaire au voisinage des vacuoles. H.E. x35.

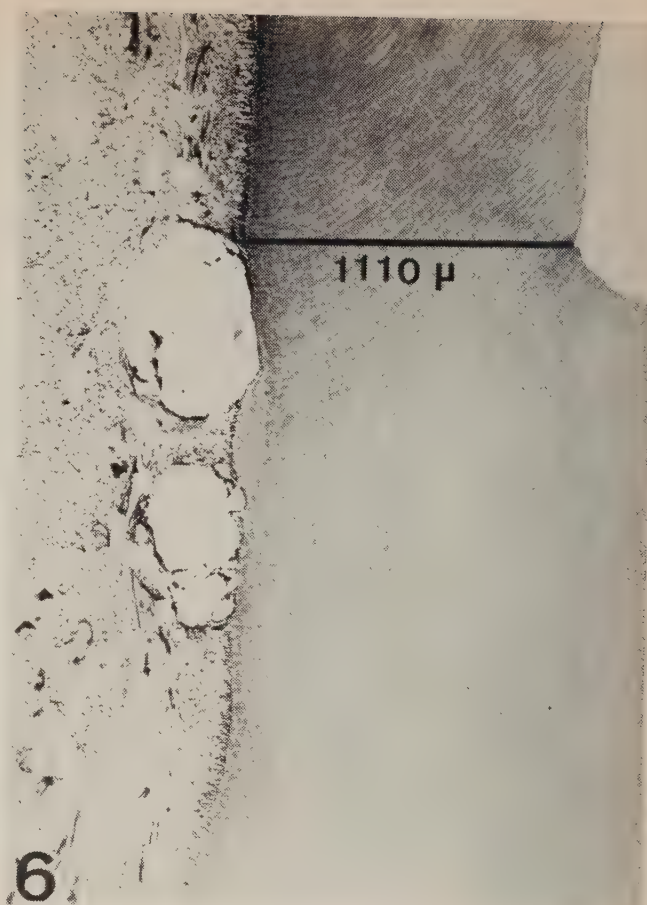


Fig 6 Dent 34 d'un sujet de 15 ans, 120 jours après coiffage indirect à l'Hydrex, montrant la persistance de la dégénérescence vacuolaire. H.E. x35.

Phaneuf et al,<sup>17</sup> d'autre part, ont comparé les effets du coiffage direct à l'Hydrex, au Dycal et au Pulpdent sur 54 pulpes jeunes qui ont été dénudées expérimentalement. L'Hydrex a engendré sans exception une "nécrose superficielle" plus ou moins étendue, avec inflammation et dégénérescence de la pulpe, sans aucune néoformation du pont dentinaire. L'Hydrex a été jugé contre-indiqué pour tout contact avec la pulpe dénudée.

Holz, Fiore-Donno et Baume<sup>1</sup> soumettant à l'épreuve biologique le "Silicap" sur 10 dents avec un fond d'Hydrex ont signalé la présence de "vacuoles" dans le stroma pulpaire correspondant à l'angle gingivo-axial de la cavité (Fig 7). Ces observations nous ont incités à réexaminer les effets de l'Hydrex dans la présente étude.

Langeland et al<sup>18</sup> viennent de tester l'Hydrex en tant qu'isolant sous les obturations aux composites résineux d'Addent 35 (3M) et de Dakor. L'Hydrex était assez bien toléré par la pulpe du singe. Mais dans le matériel humain (après des périodes de deux à 120 jours), l'Hydrex avait provoqué dans les cavités profondes plusieurs réactions "modérées" et "sévères". Pourtant, les auteurs ont jugé suffisante la protection offerte par l'Hydrex.

Il est bien évident que ces résultats ne sont que partiellement comparables aux nôtres, étant donné le manque d'homogénéité du matériel et des méthodes d'expérience d'une part, et les différences dans les critères d'évaluation utilisés par les divers auteurs d'autre part. Une fois de plus, la nécessité d'une en-

tente internationale à propos d'une procédure normalisée de tests biologiques est mise en évidence. Cependant, il n'y a pas de différence de fait, mais plutôt d'interprétation. Peut-on juger acceptable un produit dit de protection pulpaire qui provoque par lui-même des réactions "sévères" dans un certain nombre de cas? Si l'on appliquait la même échelle que celle préconisée par Langeland<sup>19</sup> pour la technique de préparation des cavités, la réponse serait nettement négative.

Comme dans tous les tests biologiques que nous avons réalisés précédemment avec divers produits d'obturation,<sup>1,7,20,21</sup> nous avons constaté dans les deux groupes de la présente étude une grande variabilité des réponses pulpaires. Cette variation était imprévisible puisqu'elle n'avait de corrélation ni avec la profondeur de la cavité ni avec les périodes postopératoires ascendantes. On ne saurait trop insister sur le fait que les tests biologiques n'aboutissent jamais à une équation mathématique; ils permettent uniquement de déceler une tendance vers l'innocuité ou la toxicité du produit.

Cette tendance est ressortie clairement pour les deux produits testés. Le ZOE a engendré dans la majorité des cas une réaction à peine discernable et aucune réaction intense; la réponse pulpaire à l'égard de l'Hydrex, en revanche, était rarement "légère" et dans la plupart des cas "sévère", caractérisée par une dégénérescence vacuolaire.

La signification pathologique et clinique des "bulles" est difficile à comprendre. Il pourrait s'agir de vésicules "cytoplasmiques" qui représentent une



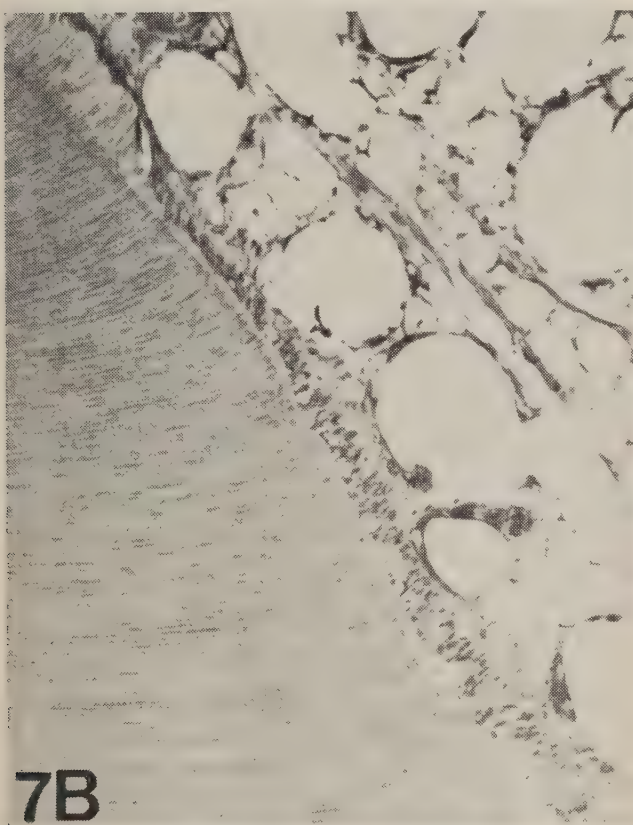
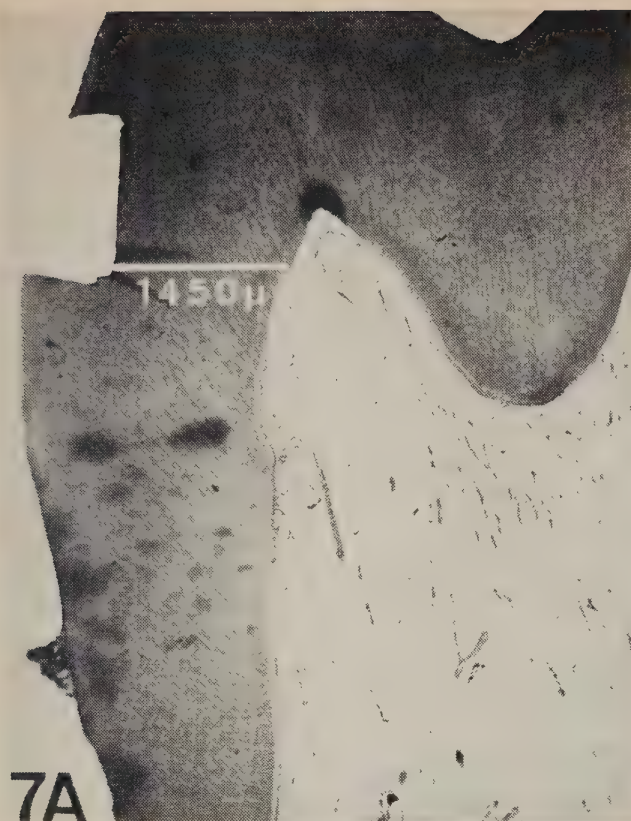


Fig 7 Une image identique aux précédentes a été observée sur une dent 34 d'un sujet de 10 ans, 132 jours après coiffage à l'Hydrex et obturation au Silicap (Holz, Fiore-Donno et Baume, 1968<sup>1</sup>). Les bulles n'intéressent cependant que la région sous-odontoblastique et, avec la présence de plasmocytes et de macrophages, indiquent une réaction "modérée". H.E. Fig 7A x15. Fig 7B x160.

des premières manifestations de l'atteinte cellulaire.<sup>22</sup> A leur niveau, on constate une réaction inflammatoire

"modérée", mais l'aspect prédominant est la phagocytose. L'empreinte des vacuoles dans la matrice pré-dentinaire fait aussi penser à des bulles de gaz, étant donné qu'il n'y a jamais eu de trace de liquide à l'intérieur. Une insufflation d'air pendant la préparation de la cavité paraît exclue du fait que notre technique limite l'emploi de l'air-rotor au niveau de l'émail et que le séchage est toujours fait à travers un coton que l'on place dans la cavité. En outre, l'apparition de ce phénomène n'a pu être notée qu'après l'emploi d'Hydrex. Reste à savoir si la résine "selected" de ce mélange, dans des conditions particulières, dégage du gaz pendant le durcissement.

En conclusion de ces observations, nous pensons que l'Hydrex ne se prête pas à la protection pulpaire, en tout cas pas dans des cavités profondes. Le ZOE, en revanche, offre les meilleurs résultats actuellement enregistrés dans les tests biologiques. Cependant, cet isolant solide présente les inconvénients de s'étaler difficilement au fond des petites cavités, de durcir lentement et de réduire — à l'état frais — la résistance à la compression des composites résineux.<sup>21</sup> Pour ces raisons, nous procédons dans la clinique en présence des cavités profondes à l'obturation en deux temps: la première séance se termine par l'obturation complète de la cavité au ZOE; dans une seconde séance, on diminue cette obturation provisoire en laissant la partie profonde sur laquelle on place l'obturation définitive. Biologiquement, ce procédé est de loin le plus sûr pour l'obturation de toute cavité profonde, surtout de la classe V.<sup>21</sup>

## Résumé

L'utilisation répandue des composites résineux (Addent, etc.) dans la pratique journalière vient de remettre au premier plan le problème du choix d'un isolant qui soit à la fois compatible avec les matériaux d'obturation et capable de prévenir les effets nocifs de ces derniers sur la pulpe. La condition préalable à l'emploi de ce genre d'isolant doit être la tolérance du produit intermédiaire lui-même par la pulpe.

A ces fins, deux produits couramment utilisés ont été soumis à l'épreuve biologique, selon un procédé normalisé décrit précédemment.<sup>7, 8</sup> Quarante prémolaires de sujets âgés de 10 à 18 ans destinées à l'extraction pour des raisons orthodontiques ont été utilisées selon la répartition croisée du tableau 2. Vingt dents ont été coiffées au ciment ZOE et 20 dents controlatérales à l'Hydrex. La profondeur moyenne des cavités-tests était de 1mm et les périodes postopératoires comprenaient 32, 120 et 200 jours.

Le ciment ZOE dans la plupart des cas (13 sur 20) n'a engendré que des altérations pulpaires à peine discernables. Dans sept cas, on a noté une infiltration clairsemée de leucocytes et une apposition de dentine tertiaire strictement localisée. En revanche, l'Hydrex n'a été toléré que dans quatre cas, alors que cinq cas présentaient une réaction "modérée" et 11 une réaction "sévère". Ces réponses intenses étaient caractérisées par la présence de multiples bulles, tapissées de plasmocytes et de macrophages. On pouvait les observer même après des périodes prolongées de 200 jours.



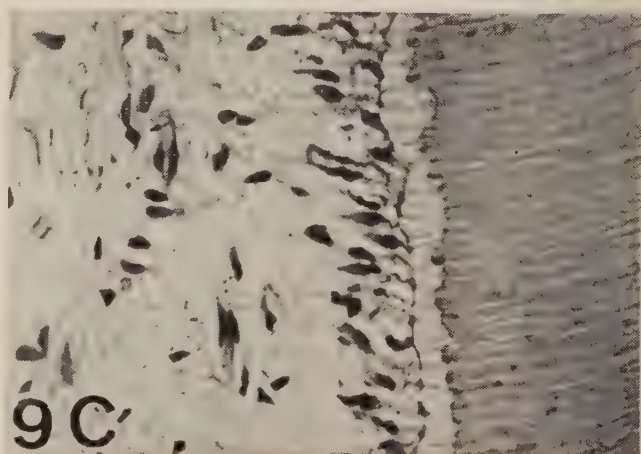
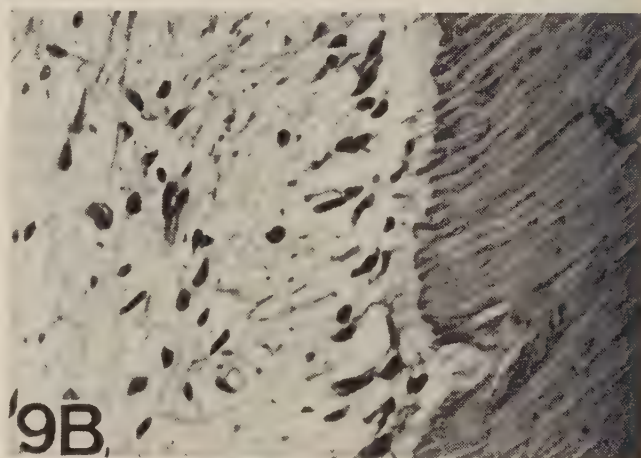
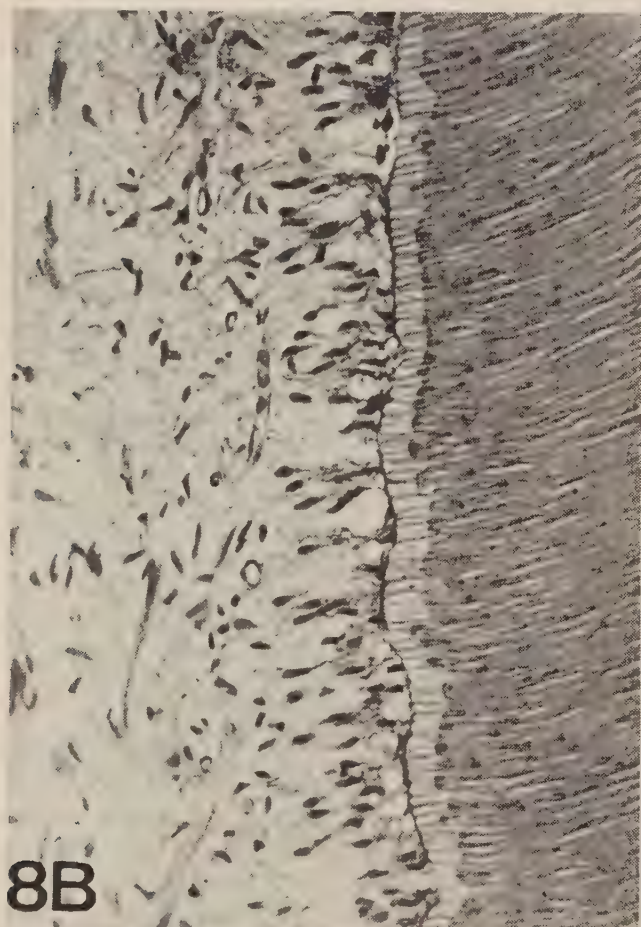
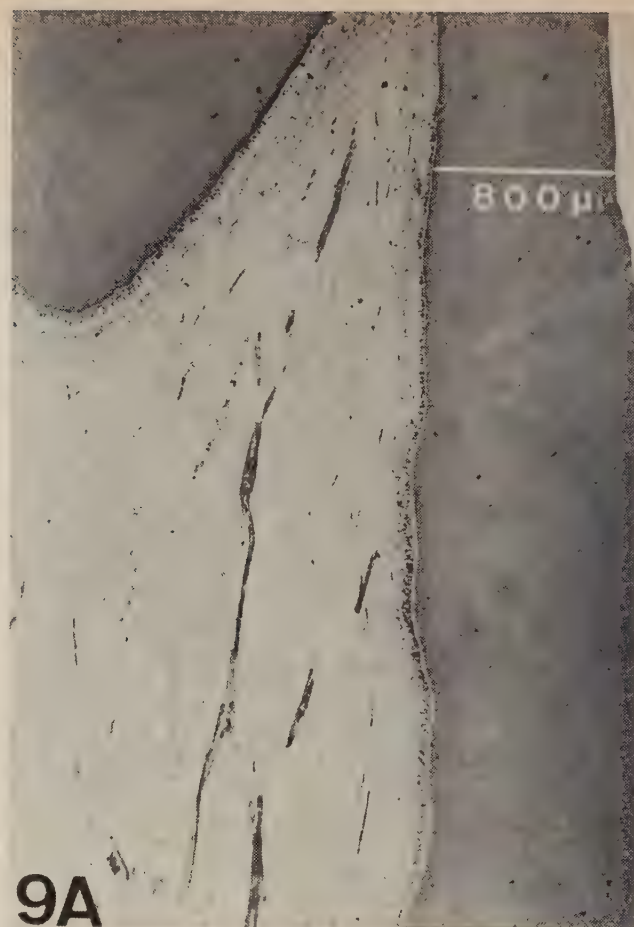
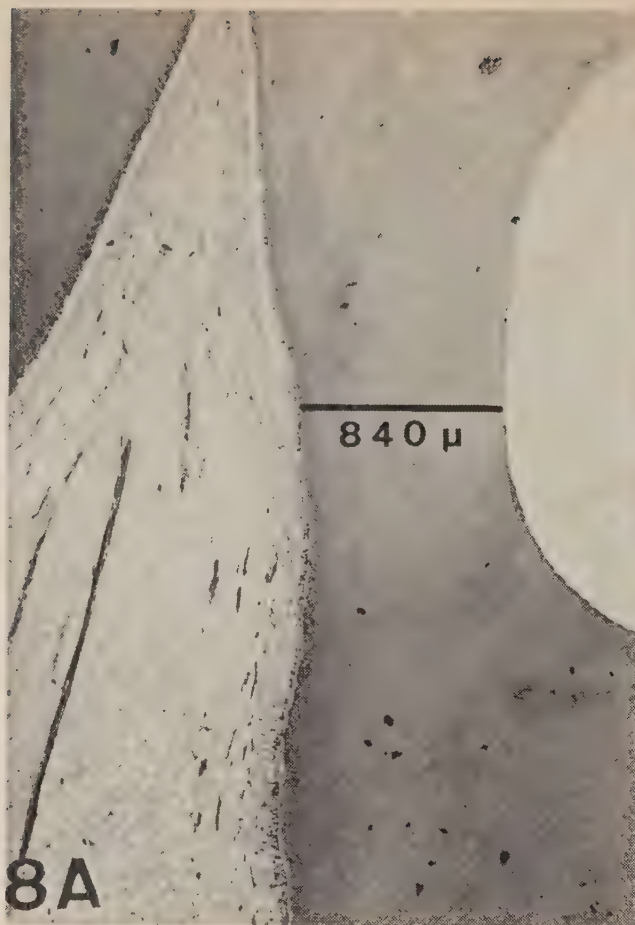


Fig 8 Dent 44 d'un sujet de 13 ans, 120 jours après coiffage indirect à l'Hydrex (Groupe 2), montrant une pulpe aux structures régulières, sans apposition de dentine tertiaire. La couche odontoblastique intéressée par la cavité contient quelques petites vacuoles. La réaction est "légère". H.E. Fig 8A x30. Fig 8B x300.

Fig 9 Dent controlatérale du même patient que figure 8, montrant une pulpe avec réaction "légère". La couche odontoblastique sous-jacente à la cavité présente quelques dérangements (Fig 8B), tandis que dans les endroits non intéressés par la cavité, cette couche est régulière. H.E. Fig 9A x25. Fig 9B x400.



Summary

The increased use of composite resins has accentuated the problem of choosing liners which are compatible with the filling material and able to protect the pulp from its toxic effects. The liners themselves must obviously be tolerated by the pulp. To this end, two currently used products were tested using a standardized technique.<sup>7,8</sup>

Forty bicuspid teeth which were to be extracted for orthodontic reasons from subjects aged between 10 and 18 years were used in the diagonal arrangement shown in Table 2. Test cavities in 20 teeth were dressed with zinc oxide-eugenol and those of 20 contralateral teeth with Hydrex. The average cavity depth was approximately 1mm and the postoperative periods, 32, 120 or 200 days.

In the majority of cases (13 out of 20), zinc oxide-eugenol provoked only very "slight" pulpal responses. On seven instances, there was a sparse infiltration of leucocytes and a localized apposition of tertiary dentine.

In contrast, Hydrex was well tolerated in only four instances; five pulps showed a "moderate" reaction and 11 a "severe" reaction. The more intense responses were characterized by the presence of multiple vacuoles lined by plasmocytes and macrophages. These reactions which were always localized in the pulpal region related to the gingivo-axial angle of the cavity could be observed even after prolonged postoperative periods of 200 days.

Ce travail a bénéficié d'un subside de la Société Suisse d'Odonto-stomatologie.

Le travail a été effectué à la Section de Médecine Dentaire de l'Université de Genève, Département de Prévention, Restauration et Parodontologie (Directeur: Professeur L. J. Baume), 30 rue Lombard, 1211 Genève 4, Suisse.

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(suite de la page 2)

Mais cette réaction perd sa valeur lorsqu'elle ne s'accompagne pas d'une pensée rationnelle et d'un jugement adulte. L'écologie, comme le fait remarquer Gold, représente la totalité de notre existence, et les jugements de valeur portant sur ses composantes sont parmi les plus difficiles à poser par un profane. Donc la technique de plus en plus courante qui consiste à refuser pour le plaisir de refuser s'avère inadéquate lorsqu'il s'agit de se prononcer sur un phénomène aussi délicat et aussi complexe que la vie.

Le refus aveugle devant les talents dont l'homme dispose pour améliorer sa condition par des moyens soi-disant artificiels n'est pas, tout compte fait, supérieur à la contamination imprudente de son environ-

nement. C'est, dans les termes incisifs de William Gold, "le refus de l'homme lui-même".

(suite de la page 2)

prendra pas tellement ceux qui ont vu le poids et la variété des responsabilités qui pesaient sur ses épaules. D'autre part nos regrets sont atténués car nous savons bien que, en abandonnant cette responsabilité, Marcel Tenenbaum ne fera pas moins pour sa profession que de trouver du temps pour en faire plus davantage.



## Effective sedation and local anaesthesia for high risk cardiac patients

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*The choice of anaesthetic for the oral surgery patient with heart trouble is always a difficult one. Some anaesthetics used by dentists for most surgical procedures are often unacceptable and involve considerable risk. The following article describes three case reports in which a safe sedation technique for such patients is successfully employed. Indications for dosage and patient evaluation are also given.*

*Le choix d'un anesthésique adéquat à administrer à un patient souffrant de trouble cardiaque est toujours un problème difficile à résoudre. Plusieurs anesthésiques utilisés par le dentiste pour la plupart des opérations chirurgicales s'avèrent souvent inacceptables et impliquent des dangers considérables. L'article qui suit décrit trois cas pour lesquels on a utilisé avec succès une technique de sédation sans danger pour de tels patients. L'article donne aussi la dose requise ainsi que l'évaluation du patient.*

The purpose of this article is to describe a reliable, safe and low risk sedation technique that is currently used for cardiac patients undergoing oral surgical procedures at the Toronto General Hospital. Cardiac patients include those with ischaemic heart disease, valvular heart disease or a combination of both. The majority of these patients have valvular heart disease and are in hospital for heart surgery. Any oral source of infection that may cause a bacteraemia and subsequent complications is therefore eliminated prior to cardiac surgery to reduce the chance of postoperative infection of prosthetic valves.

Patients with ischaemic heart disease must be adequately sedated in order to prevent an increase in the circulation of adrenalin. Fear or apprehension resulting in increased amounts of circulating catecholamines endanger these patients by increasing the load on an already damaged heart muscle. We must help these patients through a stressful situation and also eliminate their attendant problems with general anaesthesia.

At the Toronto General Hospital we found that intramuscular sedation with Pantopon and hyoscine one hour prior to oral surgery is a very dependable method with minimum complications. The intramuscular route is preferred as it allows the patient to come from the ward already sedated. If the dose is properly assessed there is no need for any additional sedation.

### Drugs employed

Pantopon contains 50 per cent anhydrous morphine and 50 per cent of the remaining opium alkaloids (mainly papaverine, codeine, narcotine, thebaine).<sup>1</sup> The average dose is 10-20mg IM varying with the patient's age, weight, sex and systemic condition. Precautions are the same as those for morphine and the drug should be avoided when respiration is already depressed or ineffective. It is contra-indicated in adrenocortical insufficiency, severe liver disease, hypothyroidism and in patients being treated with monoaminoxidase inhibitors. Side effects include drowsiness, confusion, nausea, vomiting and constipation. Treatment of overdose is supportive with the intravenous administration of an antagonist such as levallorphan (Lorfan) 1-2mg. Pantopon is given one hour prior to oral surgery and aids in both analgesia and sedation.



Hyoscine is also administered intramuscularly with the Pantopon. It is given mainly for its amnesic and sedative qualities, but its drying effect provides a secondary benefit for oral surgery. Hyoscine also counteracts the respiratory depression that may be produced by the Pantopon as it increases the respiratory rate and volume.<sup>1</sup> In patients over 60 years of age it may produce restlessness and excitement.

Hyoscine's effect on the heart rate is variable. It tends to decrease it unless given intravenously when large doses may increase the rate. This is important when administering the drug to patients with ischaemic heart disease; it will not put an extra load on the cardiac muscle as would atropine. The dose is 0.4mg IM.

The combination of Pantopon and hyoscine given intramuscularly one hour prior to surgery provides a well sedated patient. In many cases he will not remember the procedure the next day because of the amnesic effect of hyoscine. Vigilance is essential, however, as patients sedated with these drugs may require up to six hours' postoperative observation.

Patients with valvular heart disease must also be given prophylactic antibiotics, preferably penicillin.<sup>2</sup> Over 85 per cent<sup>3-5</sup> of cases of bacterial endocarditis are streptococcal and penicillin is almost always effective and bactericidal against all strains. Erythromycin can serve as an alternative for patients who are allergic to penicillin. Antibiotics may also be selected on the basis of drug usage in the past and sensitivity experience.

Profound local anaesthesia is essential for the operation. If the patient has ischaemic heart disease an agent with no adrenalin or adrenalin 1:200,000 is used.

## Patient evaluation

A patient who presents a poor risk for a general anaesthetic is not a good risk for sedation either. Much information can be obtained by talking to the patient and from a functional inquiry into the cardiovascular and respiratory systems and kidney and liver function. These are the areas that serve as a guide to dose and patient assessment.

Key questions to be asked are: Does he suffer from frequent shortness of breath on exertion? Can he walk down the hall with you? Is he able to work a normal day or climb a flight of stairs? Does he wake up at night short of breath? How frequent are his attacks of angina and are they relieved by nitroglycerin?

Information about the patient's respiratory status is sought from the responses to such questions as: Does he have asthma or emphysema or does he cough up sputum frequently? Can he take a deep breath without coughing or can he blow out a match? Does he sound as if he is labouring while he is talking to you? If reduced respiratory function is noted the dose of Pantopon may have to be reduced.

Questions should also elicit details of the patient's past medical history, particularly with respect to the kidneys and liver. A history of jaundice, nephritis or cirrhosis may be indicative of damage to these organs. This may prolong the effect of narcotics because they will be detoxified and excreted more slowly.

The patient should also be questioned about allergies, bleeding abnormalities and drug therapy. Many

cardiac patients take anti-coagulants and any surgery must wait until the necessary adjustments are made.

Additional information may be gleaned from laboratory findings. At the Toronto General Hospital most cardiac patients undergo numerous laboratory tests and the results are recorded on their charts. We note the findings with respect to haemoglobin level, urinalysis and differential white cell counts. Patients with a low haemoglobin level may present an oxygenation problem without any sign of cyanosis if they are overdosed. Test results indicating impaired liver or kidney function also prompt us to lower the dose of Pantopon. The prothrombin time should be ascertained in patients who have received any anti-coagulants; it should be less than one and a half times of normal before any surgery is performed.

The required drugs and their amount are prescribed after the patient, the procedure and available laboratory data are evaluated. The most important part is the assessment of the patient. If this is carried out properly an effective dose can be given that results in a safely sedated, calm, cooperative patient. Such a patient is always responsive and able to maintain his own airway. His blood pressure and pulse rate will hardly vary and on the following day he will recall very little, if anything at all, of what was done.

## Case reports

**Case 1**—P.M., age 60, was referred for dental consultation before cardiac surgery. His physical activity was limited due to shortness of breath on exertion. He suffered from aortic stenosis for which he received daily doses of digoxin 0.25mg and hydrochlorothiazide (Hydrodiuril) 50mg. He weighed 184lb, and his blood pressure was 114/70 with a regular pulse rate of 80. There was no history of allergies or bleeding abnormalities. Laboratory results were within normal limits.

The patient was advised to have his remaining teeth removed because of extensive Class V carious lesions and periodontal disease that could prove a source of infection for a prosthetic heart valve (Fig 1). The cardiologist wished to avoid general anaesthesia for the extractions as the patient was scheduled for heart surgery and because of a possible difficult recovery period. The oral procedures were therefore performed under local anaesthesia and sedation.

Ordinarily, a 180lb man would need 20mg of Pantopon. However, because of the fixed cardiac output characteristic of aortic stenosis, we reduced this amount to 15mg Pantopon and 0.4mg hyoscine intramuscularly one hour before surgery. Suitable antibiotic coverage was also provided. The patient arrived at the dental clinic well sedated and the extractions were performed under local anaesthesia in the dental chair. His blood pressure and pulse rate remained stable throughout the difficult extractions. A normal recovery followed and the next day he only vaguely remembered the operation.

This case illustrates how a well sedated patient tolerates extensive surgery and that patients with aortic stenosis may require less sedation than one would normally expect.



**Case 2**—W.N., age 40, suffered from a ventricular septal defect and mitral insufficiency secondary to weakened cardiac muscle caused by myocardial infarction. On admission the patient was in congestive heart failure. His medication included procainamide (Pronestyl) 250mg thrice daily, digoxin 0.25mg daily and pentamethylol tetranitrate (Peritrate) 30mg every eight hours. The patient had no allergies or bleeding abnormalities. Laboratory investigations of interest were within normal limits. Examination of the cardiovascular system revealed a blood pressure of 120/85 and a regular pulse rate of 80.

The patient was advised to have his remaining teeth (Fig 2) removed prior to cardiac surgery, thereby eliminating a possible source of infection to his heart valves. After considering the patient's weight (157lb) and cardiovascular status, he was given intramuscular Pantopon 15mg and hyoscine 0.4mg one hour before extractions. Antibiotic coverage was also provided by means of penicillin. After removing the remaining teeth and performing an alveoplasty a normal recovery ensued. The blood pressure and pulse were unchanged during the operation. There was no angina and the patient was completely relaxed and cooperative.

This case illustrates the value of sedation in patients with a history of angina or ischaemic heart disease. Pantopon and hyoscine provide excellent sedation for these patients. Moreover, hyoscine has negligible effects on the heart and does not impose an extra work load on the damaged heart muscle. Using this technique, teeth were extracted without any sequelae in patients who otherwise suffered angina three to four times daily and whose episodes were not controlled with nitroglycerin.

**Case 3**—C.C., age 43, required extraction of his remaining teeth (Fig 3). The patient had suffered from rheumatic heart disease and the mitral and aortic valves had been replaced by prosthetic valves. His medication included digoxin 0.25mg daily, dipyridamole (Persantine) three times a day and bishydroxycoumarin (Dicoumarol) 50mg daily. He weighed 138lb and could carry out a normal day's work.

While he was in hospital the cardiologist reduced the dose of bishydroxycoumarin to bring his prothrombin time to 16 seconds (control, 12 seconds). The ex-

tractions were then performed under local anaesthesia, sedation and antibiotic coverage. Intramuscular Pantopon 15mg and hyoscine 0.4mg IM were administered one hour prior to surgery. The patient arrived and left the clinic well sedated but able to communicate. The extractions were performed and a normal recovery followed except for one episode of bleeding from the maxillary left molar area. This was controlled with local pressure and suturing. His blood pressure and pulse remained normal at 100/70 with a regular rate of 80. He remembered nothing of the operation.

This case demonstrates the need for adequate preparation in patients on anti-coagulant therapy. And it illustrates how a patient with valvular heart disease and possible ischaemic heart damage was adequately handled under local anaesthesia and sedation, thereby shielding him from the additional risks of general anaesthesia.

## Summary

A sedation technique currently used for cardiac patients at the Toronto General Hospital has been described. Guidelines for patient evaluation and dose selection are also presented. Pantopon and hyoscine provide a reliable, safe and predictable sedation technique as illustrated by the three case reports. This technique can be used on most cardiac patients, but is also satisfactory for use on patients without heart trouble.

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## Oral health status of independent elderly persons in London, Ontario

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*A group of 502 elderly persons living independently was examined and their oral health status was compared to that of 517 people in homes for the aged. The independent group needed less treatment. These people were also significantly better in their periodontal scores, the status of their dentures, the age of their dentures and the time lapse since their last dental visit.*

*Un groupe de 502 vieillards vivant à leurs propres charges fut examiné et leur état de santé buccale fut comparé à celui des 517 personnes vivant dans des maisons pour vieillards. Le premier groupe avait besoin de moins de traitements. D'un point de vue périodontique, leur état était beaucoup plus satisfaisant aussi; de même l'état et l'âge de leurs prothèses et le temps qui s'était écoulé depuis leur dernière visite chez le dentiste.*

A previous survey of 517 elderly persons living in homes for the aged<sup>1</sup> demonstrated that the oral health status of the group was generally poor and that the majority did not receive regular dental care. A further study of 502 London persons was undertaken to compare the findings in the previous survey with a group of elderly people living independently. This information will add to the scarce data currently available on geriatric dentistry.

### Source of data

During February and July 1970, 502 elderly people were examined using Conduct-a-Lite mirrors, explorers and periodontal probes. One hundred and thirty-eight participants in the recreation program at the Senior Citizens' Community Centre were examined in February. In July, 364 volunteers of 606 residents were examined in the five senior citizens' apartment buildings in the city. These locations were chosen because they provided a large pool of independent elderly persons from which we could collect data.

The survey participants were recruited by dental assistants and dental hygienists who obtained the personal and medical histories before the oral examinations. Some examinations were conducted in a special clinic in the buildings, but most were conducted in the individual's apartment.

The median age in this survey was between 70 and 79. Over 99 per cent of this group were Caucasian, and less than 5 per cent from the professional classes. Approximately one-fifth of this group lived in their own homes. Four-fifths were from a lower economic



Condition of the dental arches in 502 London persons aged 50-99

Table 1

| Age   | Subjects | Neither arch edentulous |      | One arch edentulous |      |          |     |       |      | Both arches edentulous |       |
|-------|----------|-------------------------|------|---------------------|------|----------|-----|-------|------|------------------------|-------|
|       |          |                         |      | Maxilla             |      | Mandible |     | Total |      |                        |       |
|       |          | N                       | %    | N                   | %    | N        | %   | N     | %    | N                      | %     |
| 50-59 | 5        | 0                       | 0    | 0                   | 0    | 0        | 0   | 0     | 0    | 5                      | 100.0 |
| 60-69 | 149      | 34                      | 22.8 | 16                  | 10.7 | 2        | 1.4 | 18    | 12.1 | 97                     | 65.1  |
| 70-79 | 255      | 31                      | 12.1 | 26                  | 10.2 | 2        | 0.8 | 28    | 11.0 | 196                    | 76.9  |
| 80-89 | 90       | 7                       | 7.8  | 11                  | 12.2 | 0        | 0   | 11    | 12.2 | 72                     | 80.0  |
| 90-99 | 3        | 1                       | 33.3 | 0                   | 0    | 0        | 0   | 0     | 0    | 2                      | 66.7  |
| Total | 502      | 73                      | 14.5 | 53                  | 10.6 | 4        | 0.8 | 57    | 11.4 | 372                    | 74.1  |

Denture status of edentulous individuals among 502 London persons aged 50-99

Table 2

| Age   | Maxilla    |     |              |      |              |      |              |      | Mandible   |      |              |      |              |      |              |      |
|-------|------------|-----|--------------|------|--------------|------|--------------|------|------------|------|--------------|------|--------------|------|--------------|------|
|       | No Denture |     | Poor Denture |      | Fair Denture |      | Good Denture |      | No Denture |      | Poor Denture |      | Fair Denture |      | Good Denture |      |
|       | N          | %   | N            | %    | N            | %    | N            | %    | N          | %    | N            | %    | N            | %    | N            | %    |
| 50-59 | 0          | 0   | 1            | 20.0 | 1            | 20.0 | 3            | 60.0 | 2          | 40.0 | 0            | 0    | 0            | 0    | 3            | 60.0 |
| 60-69 | 6          | 5.4 | 11           | 9.7  | 24           | 21.2 | 72           | 63.7 | 17         | 17.2 | 14           | 14.1 | 39           | 39.4 | 29           | 29.3 |
| 70-79 | 6          | 2.7 | 21           | 9.5  | 54           | 24.3 | 141          | 63.5 | 27         | 13.7 | 26           | 13.1 | 85           | 42.9 | 60           | 30.3 |
| 80-89 | 2          | 2.4 | 10           | 12.1 | 25           | 30.1 | 46           | 55.4 | 11         | 15.3 | 12           | 16.7 | 36           | 50.0 | 13           | 18.0 |
| 90-99 | 0          | 0   | 1            | 50.0 | 0            | 0    | 1            | 50.0 | 0          | 0    | 1            | 50.0 | 1            | 50.0 | 0            | 0    |
| Total | 14         | 3.3 | 44           | 10.4 | 104          | 24.5 | 263          | 61.8 | 57         | 15.2 | 53           | 14.1 | 161          | 42.8 | 105          | 27.9 |

bracket and eligible for government subsidized (HOME) apartments.

In general, most individuals in this group made their own arrangements regarding dental care. On occasion, the children of certain residents arranged appointments.

## Findings

Over 85 per cent of the group living independently had at least one edentulous arch and 74.1 per cent had both arches edentulous (Table 1). No significant differences could be demonstrated between the same

age group of people living independently and residents of homes for the aged surveyed in 1969.<sup>1</sup>

Table 2 portrays the denture status of edentulous individuals. The dentures were classified as good if in the examiner's opinion all of the following four conditions were considered good: fit, occlusion, function and patient satisfaction. If all of the above-mentioned conditions were poor, the dentures were classified as poor. All other dentures were considered fair.

Denture status of the group was significantly better (chi-square  $P < 0.001$ ) than the 517 London people living in homes for the aged examined in 1969.<sup>1</sup>

In this survey 130 people were partially edentulous. Utilizing the same criteria as above to evaluate partial dentures, it was discovered that 84.4 per cent of the maxillae and 91.1 per cent of the mandibles either had no prostheses or prostheses which were considered less than good.

Table 3 indicates the age of dentures worn by this group. It had a significantly greater number (chi-square  $P < 0.05$ ) of newer dentures than residents of homes for the aged observed in 1969.<sup>1</sup>

The mean number of decayed, missing and filled permanent teeth (DMFT) in the various age groups is given in Table 4. The group living independently had a significantly lower DMFT in the 70 to 79 age group, but a significantly higher DMFT in the 60 to 69 and 80 to 89 age groups than the residents of the homes for the aged<sup>1</sup> (student "t" test  $P < 0.01$ ).

Table 5 shows the various components of the DMFT-TBX index. The over 14,000 lost teeth indicated, as in the 517 elderly persons examined previously,<sup>1</sup> the high tooth mortality caused by oral diseases in our society. This group had 135 teeth in need of repair and 29 which required extraction.

Age of dentures in individuals among 502 London persons aged 50-99

Table 3

| Age   | Arch | Years in service |      |      |      |     |       |
|-------|------|------------------|------|------|------|-----|-------|
|       |      | 0-5              |      | 6-10 |      | >10 |       |
|       |      | N                | %    | N    | %    | N   | %     |
| 50-59 | Max  | 1                | 20.0 | 2    | 40.0 | 2   | 40.0  |
|       | Mand | 1                | 33.3 | 2    | 66.7 | 0   | 0     |
| 60-69 | Max  | 15               | 13.0 | 17   | 14.8 | 83  | 72.2  |
|       | Mand | 12               | 13.6 | 16   | 18.2 | 60  | 68.2  |
| 70-79 | Max  | 32               | 14.3 | 22   | 9.8  | 170 | 75.9  |
|       | Mand | 28               | 15.2 | 20   | 10.9 | 136 | 73.9  |
| 80-89 | Max  | 5                | 6.1  | 9    | 11.0 | 68  | 82.9  |
|       | Mand | 3                | 4.7  | 4    | 6.2  | 57  | 89.1  |
| 90-99 | Max  | 0                | 0    | 0    | 0    | 2   | 100.0 |
|       | Mand | 0                | 0    | 0    | 0    | 2   | 100.0 |
| Total |      | 97               | 12.6 | 92   | 12.0 | 580 | 75.4  |



**Mean decayed, missing and filled permanent teeth (DMFT) in 502 London persons aged 50-99**

**Table 4**

| Age   | Males |      |        | Females |      |        | Total |      |        |
|-------|-------|------|--------|---------|------|--------|-------|------|--------|
|       | N     | Mean | (S.E.) | N       | Mean | (S.E.) | N     | Mean | (S.E.) |
| 50-59 | 2     | 32.0 | (0)    | 3       | 32.0 | (0)    | 5     | 32.0 | (0)    |
| 60-69 | 37    | 28.4 | (0.94) | 112     | 28.6 | (0.57) | 149   | 28.6 | (0.48) |
| 70-79 | 59    | 30.7 | (0.45) | 196     | 29.7 | (0.36) | 255   | 29.9 | (0.30) |
| 80-89 | 32    | 30.3 | (0.62) | 58      | 30.6 | (0.44) | 90    | 30.5 | (0.35) |
| 90-99 | 0     | 0    | (0)    | 3       | 29.7 | (2.33) | 3     | 29.7 | (2.33) |

**Specific number of decayed, missing, filled and teeth to be extracted (DMFT-TBX) in 502 London persons aged 50-99**

**Table 5**

| Age   | Males   |    |       |    |     | Females |    |        |     |     | Total    |     |        |     |     |
|-------|---------|----|-------|----|-----|---------|----|--------|-----|-----|----------|-----|--------|-----|-----|
|       | N       | D  | M     | F  | TBX | N       | D  | M      | F   | TBX | N        | D   | M      | F   | TBX |
| 50-59 | 2(0)    | 0  | 64    | 0  | 0   | 3(0)    | 0  | 96     | 0   | 0   | 5(0)     | 0   | 160    | 0   | 0   |
| 60-69 | 37(16)  | 38 | 935   | 49 | 3   | 112(36) | 35 | 2,998  | 172 | 2   | 149(52)  | 73  | 3,933  | 221 | 5   |
| 70-79 | 59(10)  | 7  | 1,789 | 14 | 0   | 196(49) | 38 | 5,575  | 196 | 15  | 255(59)  | 45  | 7,364  | 210 | 15  |
| 80-89 | 32(8)   | 6  | 944   | 12 | 9   | 58(10)  | 8  | 1,726  | 39  | 0   | 90(18)   | 14  | 2,670  | 51  | 9   |
| 90-99 | 0       | 0  | 0     | 0  | 0   | 3(1)    | 3  | 18     | 4   | 0   | 3(1)     | 3   | 18     | 4   | 0   |
| Total | 130(34) | 51 | 3,732 | 75 | 12  | 372(96) | 84 | 10,413 | 411 | 17  | 502(130) | 135 | 14,145 | 486 | 29  |

( ) = Number in group with some natural teeth present

Table 6, using Russell's Index, shows the mean periodontal index scores of the 130 persons for which a score could be recorded. The group living independently had significantly lower periodontal scores than the residents of homes for the aged in the 60 to 69, 70 to 79 and 80 to 89 groups (student "t" test  $P < 0.01$ ).

An analysis of the periodontal condition revealed 240 teeth with gingivitis and pocket formation and the tissues around 45 other teeth with advanced periodontal destruction which resulted in loss of function. The number of teeth whose periodontium required surgical treatment in this group was approximately two-thirds the number found in the first group of 517 persons living in homes for the aged.<sup>1</sup> These data show the extent and severity of periodontal disease in these 130 individuals.

Table 7 presents the distribution of 502 individuals living independently in the city of London according to their last dental visit. In all four categories, this group had a significantly shorter time lapse since their last dental visit than the 517 in the homes for the aged<sup>1</sup> (chi-square  $P < 0.001$ ).

## Further observations

Examination of the temporomandibular joints of 500 persons from this group showed that 128 had some natural teeth. This was done by palpating the right and left condylar areas while the individual performed various jaw excursions. It was found that 109 or 21.8 per cent had some abnormality of the joint. On further analysis, 22.8 per cent of the edentulous group as opposed to 18.8 per cent of the people with some natural teeth exhibited abnormalities.

There was also a high prevalence of the potentially debilitating cardiovascular and musculoskeletal diseases among these people. This information could be important because the affected individuals may require special management during the delivery of dental care.

Diseases of these two systems were found twice as often in the group living independently as in the group living in homes for the aged.<sup>1</sup> However, the difference may be due in part to the method of obtaining the data.

The distribution, according to location, of the gross oral abnormalities found in the 502 persons living in-

**Mean periodontal index (Russell) of the 130 persons out of 502 aged 50-99 who had a periodontal score**

**Table 6**

| Age   | Male |      | Female |      | Total |      |        |
|-------|------|------|--------|------|-------|------|--------|
|       | N    | Mean | N      | Mean | N     | Mean | (S.E.) |
| 50-59 | 0    | 0    | 0      | 0    | 0     | 0    | (0)    |
| 60-69 | 16   | 2.11 | 36     | 1.73 | 52    | 1.84 | (0.23) |
| 70-79 | 10   | 3.59 | 49     | 1.85 | 59    | 2.15 | (0.27) |
| 80-89 | 8    | 2.42 | 10     | 1.20 | 18    | 1.74 | (0.39) |
| 90-99 | 0    | 0    | 1      | 0.29 | 1     | 0.29 | (0)    |

**Distribution of 502 London persons aged 50-99 according to last dental visit**

**Table 7**

| Age   | Months since last dental visit |      |       |      |       |      |     |      |
|-------|--------------------------------|------|-------|------|-------|------|-----|------|
|       | 0-11                           |      | 12-23 |      | 24-60 |      | >60 |      |
|       | N                              | %    | N     | %    | N     | %    | N   | %    |
| 50-59 | 1                              | 20.0 | 1     | 20.0 | 0     | 0    | 3   | 60.0 |
| 60-69 | 25                             | 16.8 | 15    | 10.1 | 20    | 13.4 | 89  | 59.7 |
| 70-79 | 38                             | 14.9 | 22    | 8.6  | 34    | 13.3 | 161 | 63.2 |
| 80-89 | 12                             | 13.3 | 6     | 6.7  | 9     | 10.0 | 63  | 70.0 |
| 90-99 | 0                              | 0    | 0     | 0    | 1     | 33.3 | 2   | 67.3 |
| Total | 76                             | 15.1 | 44    | 8.8  | 64    | 12.7 | 318 | 63.4 |



dependently showed the highest prevalence in the lower ridge area (34) followed by the tongue (27) and the upper ridge area (23).

The authors examined individuals who managed quite well with extremely ill-fitting dentures. The illustrations (Fig 1) show dentures made in 1913 for a man who was then partially edentulous. He claimed that he still wore them and could eat quite well even though he was completely edentulous at the time of examination. The dentures in the illustrations are only two of 106 which were constructed with a vulcanite base.

### Summary and conclusions

One hundred and thirty individuals (26 per cent) had some natural teeth whereas 372 (74 per cent) were completely edentulous.

One hundred and sixty-eight dentures would have been required to replace the poor dentures and to provide dentures for individuals without them. Some of the 265 fair dentures might also have required replacement depending on the patients' needs.

Other treatment needs were observed to be less in the independent group than in residents in homes for the aged,<sup>1</sup> in that only 29 teeth required extraction and 135 teeth required restorations.

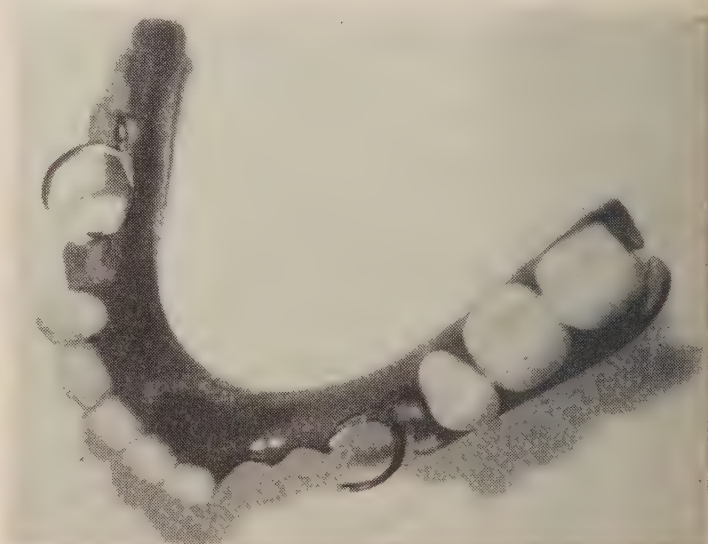
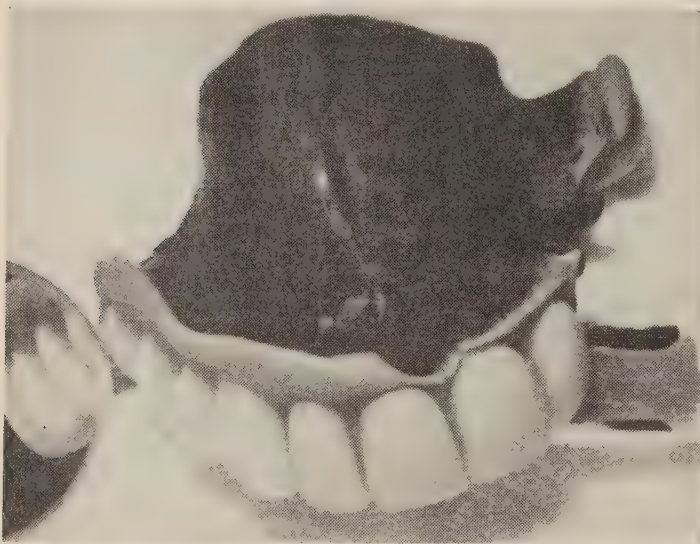
The data on periodontal disease, oral pathology and medical disorders re-emphasize a need for the utmost vigilance in carrying out a meticulous oral examination.

A statistical comparison of this group and the 517 people who lived in the homes for the aged<sup>1</sup> revealed that the independent group was significantly better in respect of their denture status, periodontal scores, the age of their dentures and the number of months since their last dental visit. Concerning the DMFT index, significant differences were found between identical age groups; however, these differences were not consistently lower in the independent group.

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These vulcanite dentures, made in 1913 for a man who was then partially edentulous, were still being worn 57 years later. The patient claimed he could eat quite well with them even though he was completely edentulous by this time.

*Dental Column for Daily Newspapers*—The Canadian Dental Association seeks a dentist to write a weekly dental column for Canadian daily newspapers. Applicants, who should have demonstrable journalistic experience, are invited

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# Clinical evaluation of neutral sodium fluoride, stannous fluoride, sodium monofluorophosphate and acidulated fluoride-phosphate dentifrices

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*Three dentifrices — a neutral pH sodium fluoride (NaF), a sodium monofluorophosphate (SMP) and an acidulated fluoride-phosphate (AFP) preparation — were clinically tested using a stannous fluoride-calcium pyrophosphate (SnF<sub>2</sub>) formulation (Crest) and a placebo as controls. After 20 months, the NaF, SMP and SnF<sub>2</sub> dentifrices showed a similar range of effectiveness in reducing the number of new carious lesions. The reduction achieved with the AFP preparation was not significant. The results show that a caries-inhibiting neutral sodium fluoride dentifrice can be formulated; they also reconfirm the efficacy of sodium monofluorophosphate dentifrices.*

*Trois dentifrices — l'un contenant du fluorure de sodium (NaF) au pH neutre, l'autre du monofluorophosphate de sodium (SMP) et le troisième du fluorure de phosphat acidulé (AFP) ont été examinés en clinique en utilisant une formulation de fluorure stanneux-pyrophosphate de calcium (SnF<sub>2</sub>) (Crest) et un placebo comme moyens de contrôle. Après 20 mois, les dentifrices à base de NaF, de SMP, et de SnF<sub>2</sub> se révélèrent aussi efficaces l'un que l'autre dans la réduction du nombre de nouvelles caries. Le dentifrice contenant de l'AFP ne donna aucun résultat significatif. Ces résultats montrent que l'on pourrait élaborer un dentifrice à base de fluorure de sodium neutre qui réduirait les caries; ils confirment une fois de plus l'efficacité des dentifrices au monofluorophosphate de sodium.*

Clinical studies dating back to the 1940's have been carried out on neutral sodium fluoride dentifrice systems.<sup>1, 2</sup> These earlier studies failed to demonstrate effective clinical caries inhibition, and interest turned to the more rewarding systems employing stannous fluoride.

Since that time, however, much has been learned about the fluoride ion as it relates to both reactions with the tooth enamel and reactions with other components in dentifrice systems. The continuing efforts to improve the already proven and accepted stannous fluoride-calcium pyrophosphate dentifrice<sup>3, 4</sup> have led to the development of a variety of new dentifrice materials.

One of these new materials is a high-beta-phase calcium pyrophosphate which is less soluble than that ordinarily used as a dentifrice abrasive. A neutral pH sodium fluoride dentifrice system was formulated based upon this abrasive.<sup>5, 6</sup> Concurrently, sodium monofluorophosphate (SMP)<sup>7</sup> and acidulated fluoride-phosphate (AFP)<sup>8</sup> dentifrice systems appeared interesting.

## Procedure

A double-blind clinical investigation was designed to test the efficacy of these formulations. For comparative purposes, a well-documented, "A"-classified (ADA Council on Dental Therapeutics) SnF<sub>2</sub>-calcium pyrophosphate dentifrice (Crest) was included in the test, along with the neutral pH NaF, SMP, AFP and



|                        | Placebo | Positive control* | Neutral pH NaF dentifrice | Sodium monofluoro-phosphate dentifrice | Acidulated fluoride phosphate |
|------------------------|---------|-------------------|---------------------------|----------------------------------------|-------------------------------|
| NaF                    |         |                   | 0.22                      |                                        | 0.22                          |
| SnF <sub>2</sub>       |         | 0.40              |                           |                                        |                               |
| Na monofluorophosphate |         |                   |                           | 0.76                                   |                               |
| Sn pyrophosphate       |         | 1.00              |                           |                                        |                               |
| Ca pyrophosphate       | 40.00   | 39.00             | 40.00†                    | 39.00                                  | 40.00                         |
| Binder                 | 1.60    | 1.45              | 1.48                      | 1.40                                   | 1.40                          |
| Detergent              | 3.24    | 3.24              | 3.50                      | 4.00                                   | 4.50                          |
| Humectant              | 30.00   | 30.00             | 30.00                     | 30.00                                  | 30.00                         |
| Water, flavour, colour | 25.16   | 24.91             | 24.80                     | 24.49                                  | 22.59                         |
| Buffers                |         |                   |                           | 0.35                                   | 1.29                          |
| pH                     | 7.0     | 4.5               | 7.0                       | 5.20                                   | 5.50                          |

\*Crest  
†High-beta-phase

control dentifrices. The formulae of the five dentifrices are given in Table 1. The positive control and the three test dentifrices contained fluoride at the level of 1,000 ppm. All five dentifrices were similar in color, flavour and other consumer properties.

A sample of 1,405 school children aged 7-14 years was recruited with parental consent in the rural area of Leduc County, Alberta, Canada. The subjects were arrayed by sex, age and initial visual-tactile DMFT and then assigned by random number to one of five groups identified only by code letter. An effort was made to obtain a socio-economic cross section of the area. The study area was rural, with a large majority of the subjects drinking water from private wells. Natural fluoride in private wells in the area is the rule rather than the exception, the concentration varying from 1.5ppm to 3.8ppm (unpublished public health data).

One hundred and forty-six subjects demonstrated fluoride mottling of the enamel, and another 83 were known to use fluoridated water from a community water supply. This is 25.6 per cent of the total sample. These subjects were found to be evenly distributed throughout the five subsamples. Although no specific fluoride ingestion history was taken, it is most probable that many subjects were ingesting fluoride at levels below mottling, yet caries-inhibiting (0.8 to 1.5ppm).

A dental health education program including films and visual aids was initiated in the participating schools. This program was conducted periodically by a dental hygienist under the direction of the principal investigator. It was directed primarily toward the teachers but included some classroom presentation. Dentifrice usage was left to the discretion of the individual.

Following initial examinations the appropriate coded dentifrices and toothbrushes were distributed to the subjects, such distribution being repeated at approximately two month intervals during the course of the study.

The visual-tactile examinations were supplemented by a five- to seven-film bitewing radiographic survey of each subject. All clinical examinations and radiographic interpretations were carried out by the same investigator. Accepted caries increment study criteria and methods<sup>9, 10</sup> were used throughout the study. All radiographic procedures were conducted by the same x-ray technician, using a well-practised and standardized technique. Every effort was made to maintain consistency in diagnostic criteria, radiographic technique, film and film handling, exploratory instruments, and the field equipment used by the investigating teams. All examinations and interpretations were independent of previous records. No changes were made

Initial balance for subjects completing the indicated portion of the study

Table 2

|                                      |                    | N   | Sex |     | Age (years) |       | DMFT |      | DMFS |      |
|--------------------------------------|--------------------|-----|-----|-----|-------------|-------|------|------|------|------|
|                                      |                    |     | M   | F   | Mean        | Range | Mean | SEM  | Mean | SEM  |
| First examination                    | Placebo            | 304 | 163 | 141 | 9.17        | 7-14  | 4.13 | .178 | 7.60 | .401 |
|                                      | SnF <sub>2</sub> * | 272 | 135 | 137 | 9.31        | 7-31  | 4.34 | .215 | 7.63 | .471 |
|                                      | NaF†               | 272 | 138 | 134 | 9.28        | 7-14  | 4.19 | .184 | 7.33 | .387 |
|                                      | SMP§               | 256 | 134 | 132 | 9.37        | 6-15  | 4.00 | .174 | 6.98 | .350 |
|                                      | AFP‡               | 301 | 156 | 145 | 9.25        | 6-13  | 4.17 | .183 | 7.28 | .371 |
| Subjects completing 12 and 20 months | Placebo            | 210 | 113 | 97  | 9.19        | 7-13  | 4.31 | .209 | 7.80 | .444 |
|                                      | SnF <sub>2</sub>   | 174 | 77  | 97  | 9.27        | 7-13  | 4.16 | .257 | 7.32 | .550 |
|                                      | NaF                | 175 | 83  | 92  | 9.30        | 7-13  | 4.07 | .214 | 7.19 | .466 |
|                                      | SMP                | 151 | 82  | 69  | 9.40        | 7-15  | 3.85 | .206 | 6.79 | .429 |
|                                      | AFP                | 184 | 86  | 98  | 9.30        | 6-13  | 4.17 | .223 | 7.05 | .425 |

\*Positive control—Crest

†Neutral sodium fluoride

§Sodium monofluorophosphate

‡Acidulated fluoride phosphate



DMFT increments: subjects completing 12 and 20 months of study

Table 3

|                    | N   | 12 months |      |             | 20 months |      |             |
|--------------------|-----|-----------|------|-------------|-----------|------|-------------|
|                    |     | Mean      | SEM  | % reduction | Mean      | SEM  | % reduction |
| Placebo            | 210 | 1.27      | .139 |             | 3.15      | .222 |             |
| SnF <sub>2</sub> * | 174 | 0.80      | .149 | 37.0        | 2.39      | .201 | 24.1        |
| NaF†               | 175 | 0.89      | .130 | 29.9        | 2.30      | .180 | 27.0        |
| SMP§               | 151 | 1.02      | .149 | 19.7        | 2.61      | .239 | 17.1        |
| AFP‡               | 184 | 1.16      | .160 | 8.7         | 2.74      | .202 | 13.0        |

| Comparison                   | Tests of significance |                  |           |                  |
|------------------------------|-----------------------|------------------|-----------|------------------|
|                              | 12 months             |                  | 20 months |                  |
|                              | z                     | Significance .05 | z         | Significance .05 |
| Placebo vs. SnF <sub>2</sub> | 2.31                  | yes              | 2.54      | yes              |
| Placebo vs. NaF              | 2.01                  | yes              | 2.97      | yes              |
| Placebo vs. SMP              | 1.23                  | no               | 1.65      | no               |
| Placebo vs. AFP              | 0.52                  | no               | 1.36      | no               |

\*Positive control—Crest  
†Neutral sodium fluoride  
§Sodium monofluorophosphate  
‡Acidulated fluoride phosphate

in the records after examination. Only permanent teeth were considered and evaluated by DMFT and DMFS indices.

Results

Table 2 shows the initial balance of the subjects at study commencement and at termination. The groups were well balanced, and no important changes were evident with sample attrition. Tables 3 and 4 show the mean caries increments and tests of significance for the DMFT and DMFS indices of subjects completing both 12 and 20 months of

the study. The differences between the placebo and the positive control are significant for both examinations by DMFT and DMFS. The same is true of the neutral pH NaF group. It is noted that the increments for the SnF<sub>2</sub> group and the neutral pH NaF group are similar, being 4.79 and 4.74 DMF surfaces after 20 months. The placebo group DMF surface increment of 6.62 is about 40 per cent higher. The sodium monofluorophosphate group did not demonstrate a significant DMFS difference from the placebo after 12 months, but at the end of 20 months a significant difference was found. The AFP increment was not significantly different from that of the placebo after 12 and 20 months. The statements of statistical significance for the results after 20 months were corroborated by Dunnett's t test.<sup>11, 12</sup>

DMFS increments: subjects completing 12 and 20 months of study

Table 4

|                    | N   | 12 months |      |             | 20 months |      |             |
|--------------------|-----|-----------|------|-------------|-----------|------|-------------|
|                    |     | Mean      | SEM  | % reduction | Mean      | SEM  | % reduction |
| Placebo            | 210 | 2.62      | .234 |             | 6.62      | .431 |             |
| SnF <sub>2</sub> * | 174 | 1.60      | .261 | 38.9        | 4.79      | .399 | 27.6        |
| NaF†               | 175 | 1.80      | .223 | 31.3        | 4.74      | .351 | 28.4        |
| SMP§               | 151 | 1.99      | .255 | 24.0        | 5.07      | .438 | 23.4        |
| AFP‡               | 184 | 2.30      | .266 | 12.2        | 5.70      | .407 | 13.9        |

| Comparison                   | Tests of significance |                  |           |                  |
|------------------------------|-----------------------|------------------|-----------|------------------|
|                              | 12 months             |                  | 20 months |                  |
|                              | z                     | Significance .05 | z         | Significance .05 |
| Placebo vs. SnF <sub>2</sub> | 2.91                  | yes              | 3.12      | yes              |
| Placebo vs. NaF              | 2.54                  | yes              | 3.38      | yes              |
| Placebo vs. SMP              | 1.82                  | no               | 2.52      | yes              |
| Placebo vs. AFP              | 0.90                  | no               | 1.55      | no               |

\*Positive control—Crest  
†Neutral sodium fluoride  
§Sodium monofluorophosphate  
‡Acidulated fluoride phosphate



## Summary and conclusions

A double-blind study tested and caries-inhibiting effect of a neutral pH sodium fluoride, high-beta-phase calcium pyrophosphate dentifrice, an AFP dentifrice, and an SMP dentifrice, using a proven  $\text{SnF}_2$ -calcium pyrophosphate dentifrice as a positive control and a placebo as the negative control. A group of 1,405 school children aged 7-14 were recruited in a rural area, arrayed by age, sex and DMFT, and randomly assigned to one of the five study groups. All oral hygiene practices were left to the discretion of the individual. Accepted caries increment criteria and study methods were employed, including visual-tactile examinations and radiographic survey of five to seven bitewing films.

After 20 months, the reductions in DMFS for the  $\text{SnF}_2$ , the NaF, the AFP and the SMP groups were 27.6, 28.4, 13.9 and 23.4 per cent respectively, and after 12 months, 38.9, 31.3, 12.2 and 24.0 per cent respectively. The 20 month reductions in the  $\text{SnF}_2$ , NaF and SMP groups are significant. The AFP group's reduction was not significant. The caries inhibition in the three groups demonstrating significance must be attributed to the efficacy of the dentifrices. The observed reductions for the  $\text{SnF}_2$ , NaF and SMP dentifrices are within a similar range of effectiveness in reducing the number of new lesions.

These results are encouraging in that they demonstrate that caries-inhibiting neutral sodium fluoride dentifrices can be formulated. They also reconfirm the efficacy of sodium monofluorophosphate dentifrice as an effective caries-inhibiting agent.

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(continued from page 6)

from the mainstream of life in Canada. He does not carry his fair weight in the governing of this country. Membership in a profession should not exclude him from this privilege but, on the contrary, should make him an asset to it. His education and his qualifications make it his responsibility. There are indeed social changes that will necessitate alterations in the professional structures upon which we have operated, but out of public interest we must preserve the essential underpinnings. In other words, we cannot sit idly by and become uncritical extensions of well-intentioned government cures for our social ills. But we can give guidance in the areas in which we are intimately involved; we can cause the government to think twice before abandoning traditional practices and, more important, we can take a greater role in creating new traditions to replace some of the old which will be lost.

The currency for this transaction is to move ourselves as individuals from our narrow horizons. We dentists must become better citizens. Not only must we continue to strive for excellence, but we must participate as citizens in all those efforts which make for the functioning of the democratic process, in political parties, in government office and on commissions. It is difficult to recall the last time a dentist was elected to a legislature or parliament or was appointed by government to serve on a commission of national importance. The divine authority that makes the legal profession so eminently qualified to be the government, members of every commission and investigative body extends to our profession as well, if we choose to make it so. It is time we did.

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# Primary herpes simplex infection of the finger: report of case

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*Primary herpes simplex virus (HSV) is a fairly unusual infection which is sometimes hard to diagnose. The usual source of infection is the oral cavity or respiratory tract of individuals who have not apparently had a herpes infection. For this reason dentists should be aware of the symptoms of herpes virus in order to protect their own health. The following case report describes an infection which was first diagnosed as a bacterial infection, and the correct diagnosis was not made until it was almost cured.*

*L'herpès primaire est une infection peu commune qui peut parfois être difficile à diagnostiquer. Le foyer normal de l'infection se situe dans la cavité buccale ou dans le système respiratoire d'individus qui n'ont apparemment jamais eu d'infection herpétique. Pour cette raison le dentiste devrait connaître les symptômes du virus herpès de façon à protéger sa propre santé. Le cas suivant décrit une infection qui au début fut diagnostiquée comme une infection bactérienne, et qui ne reçut un diagnostic correct que lorsqu'elle fut presque complètement guérie.*

Infection by herpes simplex virus (HSV) manifests itself clinically in various ways: acute gingivostomatitis, acute vulvovaginitis, inoculation herpes simplex of the skin, eczema herpeticum (Kaposi's varicelliform eruption), acute keratoconjunctivitis, and visceral herpes simplex in infants.<sup>1</sup>

Primary herpes simplex infection of the fingers, as exemplified in this report, is a rather unusual condition but one of which dentists should be aware.

## Report of case

A 29 year old, a resident in oral surgery, received a small laceration on the lateral border of the right third finger near the fingernail. The injury was caused by a wax carving instrument in the dental laboratory. For three days following the injury reasonable healing occurred, and the wound was ignored. On the fourth day a large, 2cm diameter epitrochlear node became visible on the right arm, along with a tendonitis of the right forearm. The original lesion became inflamed and painful as the epitrochlear node became evident. The next day he had a temperature of 101° F, malaise, fatigue, and extreme pain on movement of the right arm. A surgeon was consulted who made a tentative diagnosis of paronychia but assumed that the infectious agent was bacterial. The treatment prescribed was oral lincomycin, 500mg three times daily and hot saline soaks to the right hand. Intravenous blood samples were taken for blood culture and haematological analyses.

On the sixth day the surgeon made an incision and drained the primary infection site which had become progressively more swollen and very painful. The exudate was a clear, yellowish fluid, without the characteristic purulence of a pyogenic infection. On the seventh and eighth days the primary lesion became ulcerated and spread extensively beneath the fingernail (Fig 1). The patient's temperature rose to 102° F, and swollen lymph nodes became evident in the right axillary region. The culture and sensitivity test specimen taken two days previously showed no bacterial growth, while the haematological studies revealed a haemoglobin level of 14.7Gm/100ml, white blood cells 7,440/cu mm and a differential count of neutrophils 42/100ml (banded cells 3/100ml, segmented cells 39/

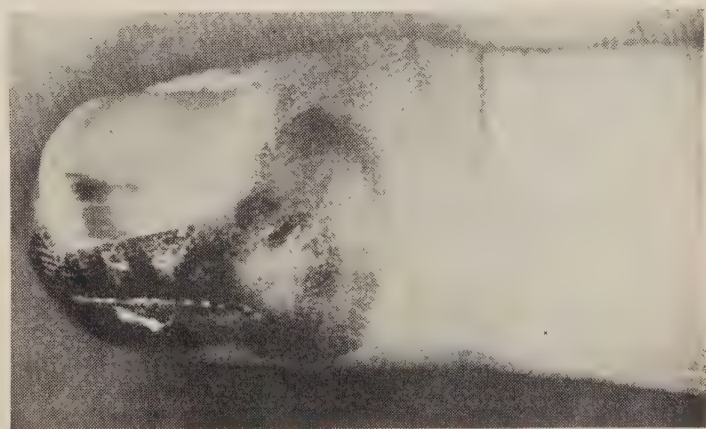
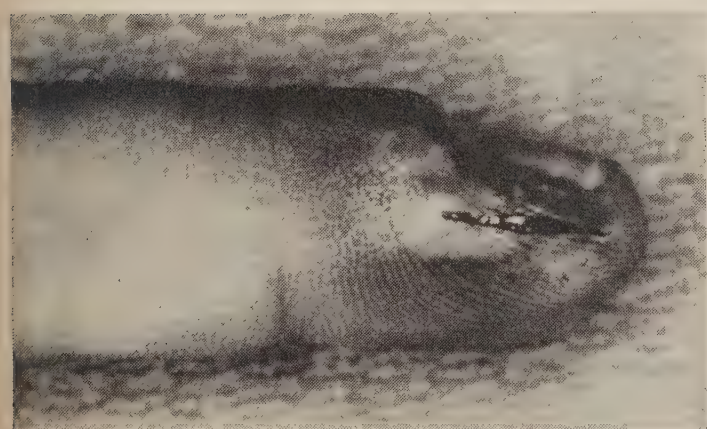


Fig 1 Two views of the right third finger infected with herpes simplex virus (HSV), on the eighth day following injury.



100ml), lymphocytes 44/100ml, monocytes 10/100ml, eosinophils 3/100ml and basophils 1/100ml.

A review of the literature suggested that the infection might be herpetic as the clinical pattern closely followed the course of previously reported cases. On the ninth day fluid was removed from the vesicles at the primary infection site for viral culture and microscopic studies and intravenous blood was sampled to determine the antibody titre. The antibiotic was discontinued at this time and treatment consisted of bed rest, hot magnesium sulphate soaks and elevation of the right arm.

The tenth day produced a dramatic improvement with the patient's temperature returning to normal and the right arm becoming less painful. Subsequent results of the viral studies confirmed the presence of herpes simplex virus in the vesicular fluid and HSV antibodies in significant quantities in the bloodstream.

Within a week the patient had returned to his duties and was able to use the right hand with relative flexibility and comfort. Four weeks later the epitrochlear and axillary lymph nodes had subsided and six months after the original injury the damaged fingernail and nailbed were completely regenerated. A slight numbness of the finger was present during the entire course of the disorder and was still evident a year later.

## Discussion

The first case of primary herpes simplex infection of the fingers to be described in the literature was by Adamson in 1909.<sup>2</sup> Since then relatively few cases have been reported although several have appeared in the literature in the last 10 years.

Primary HSV infections represent an occupational hazard to dentists, physicians and nurses if they have never experienced a primary herpetic infection. These infections when involving the fingers are described as herpetic paronychia, herpetic whitlow or traumatic herpes of the finger.<sup>3</sup> According to Brightman and Guggenheimer,<sup>3</sup> "traumatic herpes implies penetration and infection of deep tissues by some object contaminated with virus, rather than viral infection secondary to a pre-existing abrasion." The term paronychia means inflammation involving the folds of tissue surrounding the fingernail.<sup>4</sup> A whitlow, or felon, is a purulent infection or abscess involving the pulp of the distal phalanx of the finger.<sup>4</sup>

A case of primary herpetic infection of the hand was reported by Bart and Fisher,<sup>5</sup> infection of the eye of a dentist was described by Thygeson et al,<sup>6</sup> and the majority of literature on this subject concerns cases involving infections of the fingers of dentists, physicians and nurses,<sup>3, 7-11</sup> The clinical course of primary HSV infections is unusual and the diagnosis of pyogenic infection is almost invariably made because of the physical manifestations including the occurrence of severe pain.<sup>8</sup>

The usual source of infection of these primary HSV infections of the fingers is the oral cavity or respiratory tract of individuals who have not had a recognizable herpes simplex infection.<sup>9</sup> The clinical course consists of progressive swelling, pain and vesicle formation for about 10 days and a general illness in the form of fever, fatigue and malaise is usually present over a two and a half or three week period.<sup>9</sup> The risk of secondary

infection is increased when incision and drainage is performed.<sup>12</sup>

Stern et al<sup>7</sup> list six basic criteria for diagnosis of primary HSV infections: (1) no history of earlier exposure in any part of the body; (2) history of exposure to HSV; (3) incubation period of about five days; (4) characteristic lesions from which the virus can be isolated; (5) regional lymphadenopathy and systemic manifestations; (6) a definite antibody titre in fourfold amounts.

The main differential diagnosis includes recurrent herpes simplex infections, herpes zoster, and paronychia caused by staphylococci and *Candida albicans*.<sup>9</sup> Treatment is limited to prevention of secondary infection and the relief of pain with analgesics.<sup>5</sup>

Dentists, physicians and nurses are susceptible to infections of this type because of their increased risk of exposure. They can reduce the risk of contact by exercising preventive measures, such as wearing gloves when treating patients who have active herpetic lesions.

## Summary

A case of primary infection of the finger with herpes simplex virus (HSV) has been described. The patient, a resident in oral surgery, suffered an injury to the right third finger from a dental laboratory instrument. A viral infection appeared on the fourth day following injury but the correct diagnosis was not established until the disorder had already run its natural course and was about to subside due to the body's own defence mechanisms. Diagnosis was based on the clinical appearance of the lesion, the clinical course of symptoms, the isolation of HSV from the vesicular fluid and HSV antibodies in the serum in significant amounts.

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# Quebec's denturology bill

Year-end is the traditional season when men sit back to contemplate their achievements and count their blessings. Not so in Quebec, however, where Social Affairs Minister Claude Castonguay ended the year on a most disquieting note by tabling Bill 266, a proposed "Denturologists Act."

The intent of this document is to repeal existing legislation governing dental technicians and substitute an entirely new framework for an autonomous, self-governing craft of dental mechanics. Matching guileless innocence with verbal ingenuity, its architect also coined a brand new word — denturology — to describe the product of his remarkable brainchild.

A cynic might dismiss the whole thing with a simple shrug of the shoulder. After all, clothing mechanics, by whatever name, in a vestment of legality is nothing new. It's happened before in Alberta, British Columbia and Manitoba; it's just the same old problem all over again.

But if we needed any reminder of what this same old problem is, Quebec's proposed legislation provides it with a vengeance. As our report elsewhere in this issue (page 49) points out, Bill 266 would reserve to dental mechanics everything concerned with the vending, supplying, fitting and replacing of removable dental prostheses. Taken at face value, this would effectively exclude dentists from the entire field of removable complete and partial prosthodontics. Coupled with this astonishing proposition is another which expressly prohibits mechanics from performing any diagnostic or other therapeutic act.

If this incredible legislation were to pass in its present form it would give Quebec two separate and virtually unrelated groups of practitioners in the field of dentistry; dentists who can diagnose but may not engage in prosthodontic service, and mechanics who may render their service directly or through a dentist but who cannot diagnose.

Not only is an arbitrary division between diagnosis and therapy illogical, it is downright dangerous. Still fresh in too many minds is the tragic case of a Vancouver patient with a palatal sore who was fitted

with dentures by a dental mechanic; the sore turned out to be oral cancer.<sup>1</sup>

Presumably Mr. Castonguay is motivated by a genuine desire to improve the availability of prosthodontic service in Quebec. But his approach defies reason. What is more, he appears either oblivious or disdainful of the findings from an independent investigation by the Wells Committee. That group had nothing but scathing criticism for the way in which British Columbia and Alberta licensed persons with dubious qualifications to perform their services directly for the public.<sup>2</sup> Yet Mr. Castonguay and his advisers seemed determined to tread the same tortuous path.

No one quarrels with measures for extending health care and diminishing its cost as long as these are compatible with basic standards of quality and consistent with public safety. But Bill 266 does not measure up to either of these criteria.

In this, as in many other judgements, the seers who survey dentistry are peering through a glass darkly. But they can profit from the sailor who knows that the worst way to navigate in stormy seas is to take a see-saw course, veering about with every change of mood. The aim must be to find and hold a steady middle course: creating technologists from dental technicians who complete additional accredited training; allowing the technologists, on a dentist's prescription, to fabricate and fit dentures directly for the public; employing technologists only in dental offices or clinics and only under the supervision of a dentist.<sup>3</sup>

If Mr. Castonguay and his busy mandarins need an outlet for their energies, let them be directed to thus improving the capabilities of Quebec's present dental practitioners, rather than dreaming up new ones.

1 Supreme Court of British Columbia. *College of Dental Surgeons of BC vs. Ernest Kilbourne Cleland*. Feb 2, 1968; Oct 16, 1968; Feb 14, 1969.

2 Canada. Report of the Ad Hoc Committee on Dental Auxiliaries. Ottawa, Information Canada, 1970.

3 Denture service. *J Canad Dent Ass* 37:205, 1971. Editorial.



## Un mouvement vers la pratique privée en Grande-Bretagne

"The Decay of the National Health Service" tel est le titre surprenant d'un article paru dans le *Sunday Times* britannique<sup>1</sup> et qui ne peut manquer d'intéresser de près les dentistes canadiens. L'article décrit l'aventure de David Walker qui venait juste de déménager à St-Albans dans le Hertfordshire, et qui désirait se faire de nouvelles prothèses. Il découvrit que 13 des 15 dentistes exerçant à cet endroit ne voulaient plus traiter les patients couverts par le régime gouvernemental. Seuls deux praticiens étaient prêts à lui accorder un rendez-vous, et ce dans un avenir plutôt lointain.

Ce qui s'est produit à St-Albans n'est apparemment pas un cas isolé mais bien la manifestation d'un désengagement national vis-à-vis du NHS, et qui s'est accru considérablement au cours des derniers mois. Ce désengagement pourrait bien mettre tout le système en péril.

Voici quelques raisons sous-jacentes à la désaffection des dentistes: le gouvernement leur demande de remplir de plus en plus de formules lorsqu'ils exigent le paiement des traitements rendus aux patients; les structures de rémunération à l'acte du NHS encouragent la rapidité plutôt que la qualité des soins rendus; et enfin la plupart des techniques les plus modernes en dentisterie ne sont pas sanctionnées par le NHS.

Le dentiste qui veut par exemple poser un acte qui dépasse le simple traitement de base doit d'abord obtenir la permission du gouvernement, exercice parfois ennuyeux et frustrant dans la plupart des cas. Lorsque l'approbation est accordée, le dentiste reçoit généralement une rémunération ridicule. Il en résulte que les praticiens dentaires se rendent rapidement compte qu'il est plus simple d'adhérer au système de traitement de base — et pas plus — ou bien de s'orienter vers la pratique privée.

Un autre facteur qui accentue encore cette désaffection vis-à-vis du NHS semble être le nouveau système de contributions que le gouvernement exige des patients depuis avril dernier. Au lieu d'un paiement forfaitaire de \$3.80 pour avoir droit au traitement, les patients — sauf les enfants, les retraités et les femmes enceintes — doivent maintenant payer la moitié du coût total du traitement — jusqu'à une limite de

\$25.30. Bien que ce changement n'affecte en rien ce que touche le dentiste, il a provoqué un effet inattendu. Pour la première fois en effet depuis la mise en application du régime du NHS, les dentistes ont maintenant une raison de discuter du coût du traitement avec le patient avant de commencer le travail. Ils peuvent ainsi comparer les limitations évidentes du traitement payé par le NHS et la flexibilité beaucoup plus grande du traitement privé sans être embarrassés et sans donner l'air d'un grippe-sou.

Depuis les derniers mois tout particulièrement, ceci a produit un changement d'attitude remarquable au sein de la profession. Plusieurs membres assistent à des séminaires qui les prépareront à persuader les patients d'abandonner le service gouvernemental et de le remplacer par un service privé. Un des organismes qui prône cette solution organise ce mois-ci pour 60 dentistes britanniques accompagnés de leurs femmes un voyage à l'île ensoleillée de Majorque. Pendant que leurs épouses jouiront du soleil et de la mer, les praticiens apprendront comment persuader leurs patients du NHS de devenir des patients privés, non seulement pour des cas "spéciaux", mais de façon régulière.

Des quantités de compagnies d'assurances et de crédit aident à financer ces traitements privés, et selon les rapports leurs affaires progressent rapidement et régulièrement. Pour un traitement coûtant \$200 par exemple, le patient, dans le cas d'une compagnie, peut payer \$228 étalés sur plusieurs mois. Aussitôt que la compagnie accorde le prêt, le dentiste reçoit la somme de \$200 directement.

Tous les dentistes n'acceptent pas ces nouvelles orientations de la même façon. Mais les vues idéalistes qu'ils entretenaient à l'endroit du NHS ont vite été noircies par la façon cavalière que le gouvernement traite les dentistes, beaucoup trop de bureaucratie et un retour en arrière au point de vue technique.

Répondant aux critiques des dentistes, les représentants du NHS ont déclaré que le budget total annuel de \$2 milliards pour les services dentaires était limité, et que par conséquent on exige un contrôle

(suite à la page 48)



### Thiokol impressions

In dentistry, *care* is the watchword, regardless of the technique that is being used. Before the advent of thiokol impression materials a copper band technique was used with compound as the impression material. Doctor Carl Dubin of Toronto has described this technique but he recommends the use of thiokol in place of compound (October issue).

His arguments for this procedure are not wholly valid. He states, "it (gingival retraction) often damages tissue around anterior teeth." One of the faults of the old copper band method was that it was too easy to force the band too far gingivally, causing the knife-like edge of the band to cut the gingival tissue. Before making a crown preparation one should probe the gingival crevice to determine its depth and then make the cuts sufficiently shallow so that the margin is not too near the attachment. Many dentists feel they must put the margin a millimetre or more under the tissue. This is not necessarily so; in fact a millimetre is sometimes too deep. With a shallow cut and careful use of a retraction cord whose thickness has been determined by the depth of the gingival crevice one need not damage the periodontal tissue.

Other criticisms of Doctor Dubin's method are:

1. Some thiokol materials cannot be handled with the fingers as he suggests.
2. I feel it is necessary to support each seated band until the impression material is firmly set. Otherwise, the bands may sag, especially on upper anterior teeth.
3. It is difficult to know exactly how large a preformed tray need be so that it covers the copper bands without touching their incisal edges. Regular bodied material being soft could easily allow the tray to contact the bands.
4. Many epoxy resins shrink too much to be used as satisfactory dies. Silver plate (not copper) is still the best die material to which a platinum matrix may be fitted.

*G. H. Gibb, DDS  
Professor and chairman  
Department of Operative Dentistry  
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Edmonton 7, Alta*

### Canadian dentists in East Africa

As a 1970 graduate of the University of Toronto Faculty of Dentistry, I have served as a Canadian University Service Overseas (CUSO) volunteer since August 1970 as the resident dentist at Jinja Hospital, Uganda. Readers may be interested in the following résumé of my experience during the past year.

Due to the lack of oral hygiene and the predominantly soft diet in this area, I have had to extract 50-75 hopelessly

carious teeth daily with the help of an assistant.

Impacted third molars and cuspids are common. So are the many supernumerary teeth, odontomes and cementomas which I treat in a routine day.

Further surgical procedures have extended my responsibilities as there is no qualified oral surgeon on the staff. The presence of infection and the lack of proper medical treatment necessitate incising and draining abscesses and performing many extra-oral sequestrectomies in patients with advanced mandibular osteomyelitis.

Tribalism and violence are the source of a great deal of facial trauma. To date I have attended to 87 fractured jaws, several of which were treated by open reduction and direct wiring of the bone segments.

Bicycle accidents account for a surprisingly large number of alveolectomies that had to be performed on traumatized dental arches.

I have assisted our resident surgeon with a number of cleft palate and cleft lip cases for which I had previously given orthodontic treatment.

Time has also been taken up with routine work such as apicoectomies, fraenectomies and the removal of pyogenic granulomas, to which the people in this area seem very susceptible.

The work has been most interesting and challenging, and at the completion of my contract I would like to continue my studies in oral surgery at the Eastman Dental Hospital in London, England.

*H. L. Williams, DDS  
Jinja Hospital  
PO Box 43  
Uganda, East Africa*

As a CUSO volunteer and a recent graduate of the University of British Columbia, I have been posted to Jinja, Uganda, as one of two government dental surgeons in the area. Our dental unit compares very favourably by Canadian standards and includes a high-speed air turbine, an x-ray unit and an ultrasonic scaler. The work here is extremely varied and covers almost all facets of a conventional general practice; endodontics, operative dentistry, prosthodontics, orthodontics, periodontics, crown and bridge prosthodontics and many impactions, cysts, tumours, biopsy, incision and drainage (extra-oral as well as intra-oral) and numerous fractures. We have a busy practice resulting from a high demand coupled with a very great need for dental service (there are approximately 35 dentists in Uganda serving a population of over nine million).

The dental unit is divided into two sections. Doctor H. L. Williams, the other Canadian volunteer, and I handle the work in one clinic while Mr. Ezera Kisubi, a dental orderly, handles the extremely heavy load in the other. Treat-

### Dental care for the mentally retarded

The recent paper by Doctors Neave, Inkster and Phillips entitled "Dental Care in an Institution for the Mentally Retarded" (October issue) again emphasizes the reluctance of government to do more than pay lip service to the provision of total health care for mentally retarded patients. The dental suite is usually the last service to be set up and the first to be phased out in an institution, and parents who keep their children at home are forced to pay full fees for the complicated and expensive dental treatment they require.

Two other points in this informative paper deserve comment. At the Tranquille School, as in most similar institutions, mentally retarded cerebral palsied children are more often "treated" with extractions than restorations. This may be due to inadequate facilities for performing restorative dentistry under general anaesthesia and a longer interval between checkups.

The discussion of the inmates' canteen habits is of vital importance to any preventive program. These canteens are present in every institution and are the source of approximately 90 per cent of the "treats" consumed by the patients. As the oral health of these inmates is the sole responsibility of the dentist, he must become more aggressive in demanding control over this phase of their diet. He can recommend substitute drinks, gum and so forth, and he must be prepared to face opposition from entrepreneurs, hospital staff, dietitians and even some poorly informed physicians. Just as a denticare scheme would be folly without compulsory fluoridation, a preventive program would be wasted without reasonable diet control.

*D. J. Kenny, DDS  
44 Walmer Rd  
Toronto 179, Ont*



ment in his clinic is on a "come and wait your turn" basis and consists mostly of extractions and some restorations and scaling. This treatment is free of charge. On an average day Mr. Kisubi sees 45 patients, but on some days he has as many as 70. Patients in both clinics include Africans, Asians and Europeans.

We have been rather cramped but both clinics will shortly move to a new building donated to the government by a large Ugandan industrial concern. Doctor Williams is also negotiating with some of the industries in Jinja to raise money for the purchase of new equipment. Our goal is a first-class, modern dental clinic and we feel that it should include a collection of dental journals and texts. Would it be possible to receive a complimentary permanent subscription to the *Journal of the Canadian Dental Association* as a start for the library? This would be very much appreciated and would help us and future volunteers keep up to date on advances in dentistry.

W. C. Hadaway, DMD  
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Uganda, East Africa

### Metronidazole and ANUG

The results obtained with metronidazole in the treatment of acute necrotizing ulcerative gingivitis (ANUG) were apparently very good in the 20 patients treated by Doctors Proctor and Baker and reported in your October issue.

My experience with many patients over a number of years using erythromycin and spiramycin has been excellent, with just as few side effects. However, most cases of ANUG are now treated without these drugs. Scaling from the outset using topical anaesthesia (a high frequency vibration instrument such as the Cavitron is good) is recommended along with a mouthwash and early initiation of all oral hygiene methods.

I have found hydrogen peroxide quite effective as an aid in treating ANUG. I use it as a mouthwash, diluted three times and with a little baking soda added. It should only be used for about three days.

The authors report that ANUG was eliminated in seven days in one patient. I think it is impossible to reach such a conclusion in so short a period of observation, negative smear or not.

On the basis of the few cases described, I would seriously question the claim that metronidazole is safer, more rapid and effective than other methods of treatment.

H. B. Squires, DDS, FRCD(C)  
225 Metcalfe St  
Ottawa 4, Ont

*Doctor Squires' letter was referred to the authors who replied as follows:*

We feel that the use of any form of antibiotic to treat acute necrotizing ulcerative gingivitis, except in the most severe of cases, is contra-indicated.

Scaling and application of hydrogen peroxide is a very acceptable method of treatment for ANUG. By using metronidazole, however, the painful portion — the initial scaling — can be eliminated. Scaling, of course, must follow, but can be done one or two days later with much less discomfort for the patient.

Doctor Squires' comment about eliminating ANUG is, of course, correct. It would have been more accurate to state that it was clinically eliminated in that period of time.

As indicated in the bibliography, we do not claim that metronidazole is safer, more rapid and more effective than other methods of treatment solely on the basis of the few cases we described. The drug has been tested over a considerable period of time and in a number of well controlled series in England.

D. B. Proctor, DDS  
C. G. Baker, DMD  
Faculty of Dentistry  
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### Oral tuberculosis

Concerning Doctor Cleaton-Jones' report, "Oral Tuberculosis: Its Similarity to Oral Cancer," in last October's issue, I would like to draw your attention to the important dissimilarities.

Besides traumatic ulcers, three diseases should be considered when oral ulcers persist for longer than three weeks. They are carcinoma, syphilis and tuberculosis. With a careful history one may arrive at a proper conclusion because similarity exists only in their occurrence as an ulcer in the mouth, not in their histopathological features.

Carcinoma is a silent lesion except in the later stage when the patient experiences pain and lymph node involvement. Initially, the lesion is localized without any lymph node reaction. In the early stage, the base of the ulcer is clean. Its edges are elevated, indurated and palpable. This is because of active proliferation of tissue, a histological fact which differentiates cancer and its clinical signs from tissue response to infection. Later, of course, after the blood supply becomes inadequate, secondary invasion by local bacteria complicates the picture.

Syphilitic ulcers result when a gumma ruptures. They are characterized by a foul, dirty discharge. The edges of the ulcer are soft, ragged and overhanging. There is no pain. Histologically, one observes a response as in chronic in-

flammation. Of interest, also, is the characteristic vascular involvement.

A tuberculous ulcer is usually painful — characterized by "unremitting, progressive pain which interferes seriously with proper nutrition."<sup>1</sup> The base of the ulcer is clean and nodular. The edges, which are soft, may or may not be overhanging.<sup>2</sup> The histological picture is one of chronic inflammation plus an allergic response (Langhans).

Doctor Cleaton-Jones speculates whether the infection in his patient was primarily oral or secondary to pulmonary tuberculosis. If a person has had no previous contact with tubercle bacilli, the bacteria act almost as a foreign body and excite a minimal inflammatory response but no ulceration as would inert particulate matter of similar size. A previously exposed individual's response to repeated contact with tubercle bacilli would provoke a more violent tissue reaction.

Though the immunobiological and allergic response to the tubercle bacillus is still subject to debate, Robbins<sup>3</sup> believes that allergy hastens the cellular response and immunity makes the cells effective.

Oral tuberculosis is an infrequent disease. Its diagnosis may be difficult if tuberculosis is not suspected.

- 1 Burket, L. W. Oral medicine: diagnosis and treatment. Ed 4. Philadelphia, Lippincott, 1961.
- 2 Ward, T. E. and Hendrick, J. W. Diagnosis and treatment of tumors of the head and neck, not including the central nervous system. Baltimore, Williams & Wilkins, 1950.
- 3 Robbins, S. L. Pathology. Philadelphia, Saunders, 1957.

W. Somogyi-Csizmazia, MD, DDS  
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*Doctor Somogyi-Csizmazia's letter was referred to the author who replied as follows:*

I read with interest Doctor Somogyi-Csizmazia's recent letter and should like to comment on a few points raised by him.

His statement, "With a careful history one may arrive at a proper conclusion because similarity exists only in their occurrence as an ulcer in the mouth, not in their histopathological features," is rather confusing as this sentence suggests to me that a history can reveal histopathology.

There is no doubt that in many diseases a good history on its own is often diagnostic but in long-standing mouth ulcers the prime object is to exclude cancer and thus microscopic examination of material from the ulcer is man-



datory. Any purely clinical diagnosis here is really only an intellectual exercise.

The description given by Doctor Somogyi-Csizmazia of the clinical features of the various forms of ulcer are indeed those listed in the textbooks but clinical experience tends to show that these classical appearances are seldom seen. The protean appearances are probably due to superimposed secondary infections which also are responsible for a varying amount of pain in all oral ulceration.

Regarding my speculation as to whether the case of tuberculosis I reported was primarily oral or secondary to pulmonary tuberculosis, there appears to be a misunderstanding. The patient had a previous infection with tuberculosis and thus by definition the oral ulcer was not a primary tuberculosis infection. This, of course, usually occurs in childhood and usually in the lungs. The mechanism listed by Doctor Somogyi-Csizmazia refers to this primary tuberculosis infection. However, it is not certain whether the oral ulcer described arose *de novo* in the mouth as a result of the coughing up of infected sputum from the old calcified pulmonary scar.

Finally, I am in complete agreement that the diagnosis of tuberculosis may be a difficult one.

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Jan Smuts Ave  
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### Dentist curlers

Ontario dental curlers held a very successful bonspiel in London on November 19. Forty-two rinks participated. The championship rink would like to challenge the champions of the other provinces with the possibility of organizing a competition for a Canadian Dental Championship.

Interested readers may contact the writer.

*M. C. Nordene, DDS  
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### Wells Committee

In my rush to get matters cleared up before leaving Ottawa, I neglected to check the photographs (page 421, November 1971 issue) I sent you about the Wells Ad Hoc Committee on Dental Auxiliaries and the Advisory Committee on Dental Health to the Minister of

National Health and Welfare. My secretary was supposed to attach a note to each picture but unfortunately did not.

Doctor J. F. Reid of Vancouver was a member of the Wells Committee and we should have explained that he was absent when the picture was taken. Dean J. W. Neilson of the University of Manitoba was absent when the Advisory Committee picture was taken. Possibly you could mention this in a forthcoming issue of the Journal. Both were excellent members of their respective committees and I regret that they were left out — all my fault.

*R. A. Connor, DDS, DDPH  
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### Denture service

The current propaganda campaign unleashed by Ontario dental mechanics has without doubt hurt the public image of the dentist. This has been compounded by the press with such recent articles as the one in the December 15 *Toronto Daily Star* in which Donald MacDonald, MPP, charged that the Royal College of Dental Surgeons of Ontario employs private detectives to raid the "denturist" clinics. And there was the December 17 editorial in the *Globe and Mail*, titled "Toward Cheaper Dentures," which stated that "while dentists charge from \$280 to \$1,000 for a set of dentures, the denturists will provide them for as little as a quarter or a third of those figures."

How true the old adage that "An argument generates more heat than light!"

Medicine men and quacks proliferated in ancient and mediaeval times. We in the 1970s are beset by an onslaught of dental mechanics with a mechanistic approach to dentistry rather than a scientific healing-art philosophy. Dentures have become a commercial commodity, and these present-day denture merchants take full advantage of the mass media and the marketplace to proclaim their wares. They parade under the euphonious title of "denturists," according themselves the licence to work in the oral cavity. They lack adequate professional training in any of the disciplines which university-trained dental practitioners must master. Without knowledge of anatomy, physiology, bacteriology, or clinical training in oral diagnosis and chairside procedures, wherein lie their qualifications to operate in the patient's mouth.

According to the *Toronto Star* of December 28, what worries Health Minister A. B. R. Lawrence is that "denturists

are operating in Ontario outside the law and some are not even qualified or registered dental technicians." As for the so-called examinations of the Denturist Society, the health minister had this to say: "Anyone could pass their examinations. That society is just a \$10 club. It's as easy to become a denturist as it is to become a Progressive Conservative."

Recognizing that the primary consideration in all health matters is the ultimate well-being of its citizens, Mr. Lawrence is formulating legislation aimed at integrating the administration of all health services in Ontario.

We would propose that new legislation should be enacted to cover the following proposal for denture service:

The setting up of group denture clinics should be encouraged, with government subsidies recommended for mass-buying of supplies;

All group clinics to be supervised by dentists who will work cooperatively with the licensed dental prosthetic therapists and technicians on the premises;

The government and the Ontario Dental Association should take a hand in establishing clinics in hospitals, schools and other public buildings to be made available throughout the province.

Inevitably this will result in a lower fee for complete denture service.

Last November, at the Annual Winter Clinic of the Toronto Academy of Dentistry, a most noteworthy contribution was made by H. R. Orton who delivered a lecture on various concepts of occlusion in complete prosthodontics. He analysed and co-ordinated the research data for complete denture occlusion by simplifying the proven methods of the afore-mentioned authors.

We can personally verify the effectiveness of these techniques for handling a large number of denture patients, based on our own experience in the prosthetic field over more than three decades, in hundreds of successfully completed cases.

To expect too much too soon is, of course, to ignore reality. However, we feel that it would be in the best interest of the dental profession to give consideration to the following suggestions:

1. Only dentists should be the accredited supervisors in any government plan;

2. Qualified dental prosthetic therapists should have a place on the dental health team under the supervision of the dentist.

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## EXECUTIVE DIRECTOR'S PAGE



W. G. McIntosh, DDS

As we approach the 1972 meeting of the Board of Governors, a progress report on the Board's 1971 directives will be of interest.

### Dental Health Plan for Children

The Association's Dental Health Plan for Children is now in the hands of the Minister of National Health and Welfare.

Although the plan was accepted by the Board in 1968 as a practical means of improving the dental health of Canadians, it was not approved for presentation to the minister at that time. Several minor amendments were made and the Board gave its approval in Ottawa and directed that the plan be presented to Mr. Munro.

### CDA's role in medicare and denticare

The Association still has no clear directive on whether or not to encourage an extension of dental

services under medicare or to promote denticare. A committee set up by the Dental Services Council to study and advise on the CDA's proper role in these matters has been handicapped by resignations.

Recognizing the urgency to define its role with respect to medicare and denticare, the Board advised the Executive Council to cooperate with the Dental Services Council in getting on with the assignment. In addition to taking action in this area at last December's meeting, the Executive Council also set up a special ad hoc committee to study and make recommendations at the earliest possible date on matters of principle with regard to national health programs.

### Code of Ethics

The Board directed that the amended *Code of Ethics* along with explanatory commentaries provided by the Council on Ethics and approved by the Board be printed in a format that would be well accepted by corporate members. On the basis of a survey of corporate members, the Communications Council decided to print the new code on 8½ by 11 inch prepunched pages, using English and French in parallel columns.

The new edition should be available in the very near future and will be distributed to all dentists directly or through the provincial secretaries.

### Communications

After careful consideration of the report of the Ad Hoc Committee on Priorities (see 1971 CDA *Transactions*, page 101 to 103) the Board decided that the Association should give top priority rating to communications, both intraprofessional and external. Board members also agreed that the development of more effective communications should follow the pattern recommended by the Thorne Group Management Consultants in that firm's "Organizational Review" of headquarters operation.

In effect, the Thorne Group's major recommendations were that Journal advertising and production be



performed by staff rather than outside agencies; that a news editor be employed to assist the editor in developing intraprofessional news items; that the Bureau of Public Information be expanded by the addition of a full-time public information officer; and that additional secretarial assistance be provided as required. It was also advised that all communications activities be co-ordinated by a director of communications, possibly the editor.

Doctor Compton, editor of the Journal, has now assumed the additional responsibilities of director of communications. An advertising manager, production manager, news editor, public information officer and a secretary are being added to the communications staff. Consequently, the services of Gordon V. Allen Publications and Carleton Cowan Public Relations will no longer be required on a continuing basis.

### Amalgamation of councils

Another recommendation made by the Ad Hoc Committee on Priorities calls for the amalgamation of the Councils on Auxiliary Services, Dental Services and Public Health and Preventive Dentistry into a single council.

The Board was not prepared to accept this proposal without prior consultation with corporate members. Views and suggestions of members have been solicited and will be conveyed to the Executive Council when it meets in March.

### Appointment of council chairmen

The Board of Governors agreed that the Executive Council should in future appoint all council chairmen other than its own. The appointments are to be made immediately following the annual meeting of the Board.

Due to retirements as a result of completion of terms, three councils required new chairmen. They are: R. A. Clappison, Toronto, Headquarters Property; K. C. Bentley, Montreal, Hospital Services; and C. H. McCormick, Winnipeg, Public Health and Preventive Dentistry.

Follow up on the Board's 1971 directives will be continued next month.

## Tax reform and the dentist

**Ronald Onyons, CA**  
**Kingston, Ont**

Parliament recently passed Bill C259 (an Act to Amend the Income Tax Act). This article discusses its implications with regard to the dental profession.

### Income from dental practice

The most significant change in this area is the withdrawal of a professional person's right to calculate his income on a cash basis. Most professional people have under the old act taken advantage of this so that their professional income is made up of moneys actually received during the year, minus moneys laid out during the year for expenses, and depreciation on equipment, buildings and other items.

The amended act stipulates that professional people no longer have the option of the cash basis; instead, they must now calculate their income on an accrual basis. In simple terms, this means that professional income will be calculated by combining the value of all invoices remitted for services rendered during the year irrespective of whether or not payment has been received, and subtracting from this amount the sum of all expenses incurred during the year. Depreciation should be calculated on the same basis as previously.

The original tax white paper proposed that a transition period would be allowed to include accounts receivable already outstanding at the beginning of the new system. The act in its final form, however, allows that this transition period may be extended until the professional either sells his practice or dies.

At the risk of oversimplifying a fairly complex provision, the taxpayer may calculate his professional income for 1972 as follows:



1. Obtain the total of his accounts receivable outstanding at the end of the 1971 taxation year.

2. Add to this amount the total billings made during the 1972 taxation year.

3. Deduct from the total obtained in 2 the lesser of the total of the accounts receivable at the end of the 1971 taxation year or the total of the accounts receivable at the end of the 1972 taxation year.

In subsequent years, the procedure will be much the same as the taxpayer deducts the lesser of his accounts receivable at the beginning or the end of the period. The actual taxation of accounts receivable outstanding at the end of the 1971 taxation year will therefore be postponed until the taxpayer's accounts receivable total falls below the level reached at the end of the 1971 taxation year.

If we assume that the practice is growing, the actual postponement could last a considerable length of time.

While not specifically stated in the act, it is assumed that expenses will be calculated in much the same manner. The expenses actually paid during the period should be totalled, added to the amounts owing at the end of the period, minus the amounts owing at the end of the previous period.

It is rather interesting to note that there will be a built in inequity in the amended act since members who are just entering, or have recently entered, the profession will not have any substantial accounts receivable on which to defer tax. The latter is sometimes the case with members who have been practising for some time and who may have thousands of dollars built up in accounts receivable on which they will enjoy a "tax holiday."

It is advisable not to write off any patient balances on which there is even a remote possibility of collection since these will presumably form part of the accounts receivable "base." Practitioners whose fiscal year ended early in 1971 may be faced with the task of reconstructing an accounts receivable list as at the end of their fiscal year if they did not retain a copy at that time. They should contact their accountant as soon as possible to ascertain what he requires by way of reconstructed accounts receivable lists and other information.

One argument against the accrual system advanced by most professional people is the necessity for a more sophisticated bookkeeping system. I feel that this argu-

ment is insubstantial since the accrual system of accounting is mandatory if one is to maintain proper control over patient accounts receivable. Once the accrual system is properly instituted it can be maintained by relatively inexperienced staff. For dentists unfamiliar with this type of accounting a later article will describe a system which may be suitable.

## Conventions

To prevent professional people from holidaying under the guise of attending conventions the Minister, while retaining the limit of two conventions per year, has again restricted the deductibility of expenses incurred while attending conventions to those held "at a location that may reasonably be regarded as consistent with the territorial scope of the organization." One can only speculate as to the results of this restriction but it may well be that European professional organizations will have a sudden increase in membership.

## Promotion

The amendments concerning promotion expense propose that dues to any club "the main purpose of which is to provide dining, recreational or sporting facilities for its members" will not be deductible for tax purposes.

The rationale behind this particular clause is obscure since it is still considered proper for a business man to take customers or potential customers out to lunch or entertain them and obtain tax relief on these activities.

In a later article I will discuss the implications of the amendments concerning investments, real estate holdings and limited companies.

Mr. Onyons graduated as a chartered accountant in 1967. Prior to, and since, graduation he has had widely diversified experience in the field of individual and corporate taxation. His address is: 295 Brock St, Kingston.

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(suite de la page éditoriale 42)

strict du genre de travail exécuté. En ce qui concerne les kyrielles de formules à remplir, elles sont inévitables, disent-ils, et sont essentielles à ce genre de service.

Face à cette situation intransigeante, plusieurs dentistes ont commencé à se demander si le gouver-

nement se cherchait une excuse pour abandonner les traitements dentaires offerts par le NHS ou si tranquillement, il laissait le système mourir de sa belle mort.

1 Dawe, Tony et Anderson, Ken. The decay of the NHS. The Sunday Times. Le 7 novembre 1971.



# TOUGH!

## Quebec's proposed legislation is unique . . . and tough!

Tough new legislation placing all professions under single governmental control was tabled in the Quebec National Assembly last November 18.

Bill 250, an omnibus bill, makes 34 different professions subject to an identical legislative system to cover licensing and the self-governing incorporation mechanism to be used by all professions—with government-appointed professional and lay representation. The bill also defines the exclusive titles and areas of professional activity, establishes a uniform professional inspection mechanism, a uniform discipline mechanism—with government-appointed lawyers as chairmen of the discipline committees of all professions, and a uniform system to allow patients to institute complaints and obtain redress. It also establishes a government-appointed Quebec Professions Board—the government's watchdog over all professions—and confirms the legal status of the existing Quebec Interprofessional Council composed of representatives from all the professional bodies concerned.

Bill 254, the new dental act, is a much shorter document, subservient to Bill 250. Bill 254 covers the issues that remain unique to dentistry (under Bill 250), the function of the to-be-formed "Order of Dentists of Quebec" which will replace the College of Dental Surgeons of Quebec, a few specific definitions and the legislative housekeeping required specifically for dentistry.

It should be stressed that the two bills have simply been tabled in the Quebec National Assembly where they are subject to committee study, further debate and possible revision or resubmission to the legislature. In the meantime, the following explanatory notes may be of interest to readers in the other nine provinces.

### Bill 250 (Professional Code)

The main purpose of this bill is to establish procedure and rules of discipline to be followed by all the affected professional corporations, to institute an identical system for ascertaining the quality of the professional acts done by their members, to constitute a Quebec Professions Board to maintain contact between the professional corporations and the government, and to set up a Quebec Interprofessional Council which will make recommendations to the Board and to the government.

The Quebec Professions Board will be made up of three members appointed by the government, after consultation with the Interprofessional Council, for a period not to exceed 10 years. Its principal functions will be to see that each professional corporation adopts a code of ethics and arbitration procedure for its members' accounts, to ensure that certain professional corporations establish indemnity funds, to inquire into the financial administration of professional corporations in certain circumstances, to report to the government on professional corporations in financial difficulty or which do not fulfil their obligations, and to publish a compilation of the decisions rendered in disciplinary matters. The government may place under the control of the Board professional corporations which show a deficit or have insufficient funds to meet their obligations. The Board must make a report of their activities to the minister entrusted with applying the Code, before July 1 each year, and the minister must table the report in the National Assembly.

The Quebec Interprofessional Council will consist of the president or representative of each professional corporation. The Council's main task will be to study the general problems of the professional corporations and to make recommendations to the Board and the government in that regard. Each professional corporation will be required to make a contribution each year to the Council, proportional to its membership. Before July 1 each year, the Council must make a report of its activities to the minister entrusted with the applica-



tion of the Code, and the minister must table the report in the National Assembly.

### *Thirty-four occupations covered*

Chapter IV, Division I deals with the incorporation of professional corporations. It identifies 34 of these and specifies that no other corporation may be constituted except by an act or by letters patent issued under the Code. Certain criteria are established to determine whether a given corporation will or will not be constituted in the future and the bill stipulates that the exclusive right to practise a profession cannot be granted to the members of the professional corporation except by law when this is required to protect the public. Henceforth, only a member of the Quebec cabinet may present a bill to constitute a professional corporation or to amend an act constituting such a corporation. The main function of the professional corporations will be to ensure that the public is protected by supervising practice by their members. Moreover, only corporations governed by the Professional Code will be allowed to use the expression "Professional Corporation."

Division II identifies professions the practice of which is reserved to the members of certain professional corporations. It prohibits practice of these professions by persons other than those who hold an appropriate permit (licence) and forbids other persons from using titles reserved to these professionals.

Division III designates the professional corporations whose members will have the exclusive right to use the title reserved to them.

In Division IV, the conditions for issuing permits are defined. Subject to a special law, no person may obtain a permit or a specialist's certificate unless he holds a degree recognized as valid for the purpose by the government or considered equivalent by the bureau of the corporation which issues the permit or the certificate. A permit, a special authorization or a specialist's certificate may not be refused because of race, colour, sex, religion or social origin. Entry on the roll of a corporation may, however, be refused to a person whose physical or mental condition is incompatible with the practice of the profession governed by such corporation. Finally, a professional may not refuse his services to a person because of race, colour, sex, age, religion, national extraction or social origin.

### *Administration of corporations*

Division V makes rules for the administration of professional corporations. Each will be administered by a bureau consisting of directors elected by the members of the corporation and of directors appointed by the government. The number of directors will vary according to the number of members of the corporation.

The bureau must meet at least once every three months. It must maintain and publish the roll of the

members of the corporation, recognize the equivalents of diplomas issued outside Quebec, issue specialists' certificates, set membership fees (subject to approval at a general meeting), and recommend tariffs of professional fees to the government for approval.

The bureau must also adopt a code of ethics, establish an arbitration procedure for the accounts of the members of the corporation and, for certain corporations, establish an indemnity fund.

It may also make other regulations, such as prescribing standards for the keeping of professionals' offices, define specialization within the profession, establish periods of professional training, determine conditions for issuing permits, specialists' certificates and special authorizations, and determine cases in which professionals may be obliged to serve a period of training.

The regulations of the bureau must be published in the *Quebec Official Gazette* and approved by the Lieutenant-Governor in Council and by a general meeting of the members of the corporation in certain cases.

In the case of professional corporations with more than 500 members, an administrative committee may exercise the powers of the bureau except those which the bureau must exercise by regulation. Finally, the corporation must hold at least one general meeting each year. At this meeting the president must report on activities of the bureau and the financial state of the corporation. The report will be sent to the Quebec Professions Board and to the minister entrusted with the application of the Professional Code, who will table it in the National Assembly.

Under Division VI, a professional inspection committee of three members will be established within each corporation. Two members will be appointed by the bureau of the corporation and the third, its secretary, will be appointed by the government from among the members of the corporation. This committee will supervise the quality of the professional acts done by the members of the corporation; it will in particular inspect their records, books and registers and inquire, at the request of the bureau, into the professional conduct and competence of any member of the corporation. The committee may lodge a complaint against a professional with the committee on discipline.

### *Discipline*

Division VII contains rules on discipline within the professional corporation. A committee on discipline consisting of three members will be constituted within each professional corporation. Its chairman, who must be a lawyer with at least 10 years' practice, will be appointed by the government. The two other members of the committee will be designated by the corporation from among members. The government will also appoint, from among the members of the corporation, a secretary of the committee on discipline and one or more trustees. The latter may investigate whether a professional has been guilty of an offence against the Professional Code or the special act governing it. They may subsequently lodge any complaint which appears justified with the committee on discipline; the bureau may also require them to lodge such



complaint. If the committee on discipline finds the professional guilty, it may impose on him as a penalty a reprimand, a fine, striking off the roll, revocation of his permit or specialist's certificate, or the requirement to remit a sum of money to any person entitled to it. An appeal may be made to a tribunal consisting of three judges of the Provincial Court.

Each decision of the committee or tribunal will be sent to the Quebec Professions Board which will publish, in the *Quebec Official Gazette*, final decisions respecting permanent striking off roll or revocation of permits. These decisions will also be sent by the secretary of the committee on discipline to each member of the corporation.

Chapter V enables the government to make rules for advertising by professionals, recognize diplomas giving access to a permit or specialist's certificate, set the conditions for cooperation between professional corporations and teaching institutions in preparing the curricula leading to such diplomas, and approve the tariffs of professional fees.

Under Chapter VI, no one may practise radiology or radiotherapy without holding a special permit for that purpose unless he is a physician or dentist.

### *Penalties*

Chapter VII indicates that offences other than those giving rise to disciplinary measures will result in a fine of \$200-\$2,000 following proceedings instituted by the attorney-general or the corporation concerned. The fine will be paid to general revenue if the attorney-general is the prosecutor, or to the corporation if it is the prosecutor.

Chapter VIII enables persons making an inquiry in accordance with the Professional Code to apprise themselves, while sitting *in camera*, of the record of a professional and to require the delivery of any document respecting such inquiry. Persons making such an inquiry may not be prosecuted by reason of an act done in good faith in the performance of their duties. No injunction may be granted against them.

### **Bill 254 (Dental Act)**

This bill will repeal the existing Dental Act and replace it with a new act in conformity with the provisions of the Professional Code Bill.

Quebec dentists will henceforth constitute a corporation to be called the "Professional Corporation of Dentists of Quebec" or the "Order of Dentists of Quebec." The Professional Code will apply to the Order and to its members, subject to the Dental Act.

The Order will be administered by a bureau consisting of a president and 20 directors elected by the members of the Order and four directors appointed by the government. All will serve for a term of four years.

In addition to the duties prescribed by the Professional Code, the bureau may advise the Minister of Social Affairs on the quality of dental care provided in institutions embraced by the "Act to Organize Health Services and Social Services." It may also make recommendations to teaching institutions. The bureau may, in particular, make regulations regarding the registration of dental students, entry on the roll and revocation of specialists' certificates.

The curricula of dental teaching institutions must be established in collaboration with the Order.

The bill defines the practice of dentistry as any act having as its object the diagnosis or treatment of diseases affecting the teeth, mouth or maxillae of human beings. The right to perform these acts is reserved to dentists. Moreover, it prescribes the conditions required to obtain a permit to practise dentistry, particularly as to registration, the diploma to be held and the professional training period. A temporary permit may be issued to a foreign dentist engaged as a dental teacher but who has not fulfilled all the conditions for obtaining a permanent permit. The bureau may also grant a restricted permit to a foreign dentist who does not fulfil the conditions required for registration and a professional training period.

No dentist may have an interest in an undertaking for the manufacture or sale of dental prostheses.

Finally, persons illegally practising dentistry will be liable to the penalties provided in this respect in the Professional Code.

*Urgently Needed* – Single copies of the February and March 1971 issues of the *Journal of the Canadian Dental Association* are needed to fill out sets for libraries and other institutions. The Association would be grateful if members wish to donate their issues for this purpose.



## National Convention

### Convention to be centered at Bonaventure Hotel

More than 3,000 delegates are expected to converge on Montreal for the 1972 CDA national convention, June 4-7.

Plans are already well advanced and the program, to be held with Les Journées Dentaires du Québec, will offer a good balance of stimulating study and enjoyable leisure activities.

An outstanding lineup of speakers, representing the cream of domestic and foreign talent, will discuss the results of current research in dentistry and will deal with a broad range of practical issues relating to modern practice. Numerous panels, table clinics and films will complement the formal sessions.

The convention will be launched at 8:00 pm Sunday, June 4, at the Bonaventure Hotel and ends in late afternoon on Wednesday, June 7.

Delegates will find convention facilities and accommodation in Montreal first rate. The city boasts a large number of very fine hotels, several of them in the vicinity of the Bonaventure Hotel which will serve as the convention centre.

All scientific sessions at the convention will be housed on one floor in adjacent rooms and the commercial exhibits will be in a convenient location close to program activity areas.

### Hans Selye to deliver Grieve lecture

Hans Selye, internationally renowned researcher, author and lecturer, will deliver the Grieve Memorial Lecture at the 1972 CDA convention. His presentation, "The Development of the Concept of Stress from 1936 to 1972," is scheduled for 11:30 am Monday, June 5.

A native of Vienna, Doctor Selye is now professor and director of the Institute of Experimental Medicine and Surgery at the University of Montreal. He is best known for his description of the general adaptation or "stress" syndrome, only one of a long list of significant contributions in the field of medicine.

At present, most of his research is concerned with prevention of cardiovascular disease and a group of hormones which he calls "catatoxic steroids."

Doctor Selye holds earned doctorates in medicine, philosophy and science, as well as 14 honorary degrees conferred by universities in Canada and in 10 foreign countries. He is the author of more than 1,300 articles in technical journals and of 26 books.

### Canadian Forces slate "Continuing Education Day"

Tuesday, June 6, will be "Continuing Education Day" at the CDA national convention.

The day-long program, presented by the Canadian Forces Dental Service, will be a clinically-oriented session featuring a wide spectrum of topics aimed at meeting the needs of today's general practitioner.

Ten clinicians will be on hand for the various sessions covering oral surgery, oral pathology, orthodontics, fixed and removable prosthodontics, periodontics and preventive dentistry. Practical demonstrations by a military dental therapist and an equipment repairman will also be included. Generally, the morning presentations will be repeated in the afternoon. Those on orthodontics and fixed prosthodontics will be presented in French.

An additional feature of the Canadian Forces one-day program will be the presentation of the findings of the Easter Island Expedition, a Canadian venture carried out in 1965.

Col. L. G. Craigie is chairman for the program and Maj. L. A. Reynolds is

executive co-ordinator. Both officers are with the Canadian Forces Dental Service School at Base Borden, Ont.

### Paedodontics, oral surgery chief topics for Les Journées Dentaires du Québec

Paedodontics and oral surgery will be the chief topics under study during Les Journées Dentaires du Québec, to be held with the CDA national convention in Montreal.

The program developed by the Quebec Dental Surgeons Association calls for one and a half days to be devoted to each discipline, with paedodontics scheduled for Monday, June 5 and the morning of June 6, and oral surgery set for Tuesday afternoon and all day Wednesday.

Exceptions to this general concept are two pre-convention seminars to be held on Sunday, June 4. Murray Diner of the University of Montreal's Faculty of Dentistry will conduct the Sunday seminar on paedodontics, while the one on oral surgery will be conducted by Yves Boivin and Edward Cree. Doctors Boivin and Cree are with the Faculty of Dentistry, University of Montreal, and both hold staff appointments at Notre-Dame Hospital.

A breakdown of the program on paedodontics shows it to be divided into three half-day segments to allow repetition of the various sessions at different times. This enables delegates who are unable to attend one session to pick it up at a later time.

The program starts off with a general session Monday morning at 9:00. This session is designed to complement the continuing education program sponsored by the College of Dental Surgeons of Quebec and it will continue all day Monday and Tuesday morning. Speakers for the session are Gérald Albert, Georges Perreault and Victor Legault, all of the University of Montreal's Department of Paedodontics.

At the same time, clinical demonstrations of paedodontic practice will be going on in another room under the direction of Leonardo Abelardo, assist-

The 1972 annual meeting of the Board of Governors of the Canadian Dental Association will be held at the Bonaventure Hotel, Montreal, June 1-3. The meeting is open to all members of the Association.

The national convention of the Canadian Dental Association begins on Sunday evening, June 4, and continues through Wednesday, June 7.



ant professor at the Faculty of Dentistry, University of Montreal. This clinic, also to be repeated in the three time segments, will simulate an ideal setup for the practice of paedodontics and will illustrate the various activities of the dentist and his personnel from the time the child enters the waiting room until he leaves the office.

A continuous showing of paedodontic films, plus a number of table clinics designed to complement procedures discussed at the general session, are also scheduled for all day Monday and Tuesday morning.

Finally, to round out the paedodontic program, a session on hospital dentistry will be available to delegates.

Oral surgery will get underway at 1:30 pm Tuesday with a general session covering the various phases of surgery and stressing the principles of surgery, surgical procedures in the office and postoperative complications. Speakers for this session, to be repeated Wednesday morning and afternoon, are Claude Madore, Pierre Surprenant and Paul Mercier, all of the Department of Oral Surgery, University of Montreal.

A simultaneous session in another area will feature a lecture on hospital dentistry by Antoine Raymond, professor of oral surgery and anaesthesiology at University of Montreal's Faculty of Dentistry.

As with paedodontics, films and table clinics will run continuously during the day and a half of oral surgery instruction to complement the other sessions.

Throughout the entire three days of Les Journées Dentaires du Québec a representative of the Quebec Health Insurance Board will be available to meet with small groups and explain how the insurance board will collaborate with the dental profession in the dental health program outlined by the provincial government.

### **Nutritionist to discuss health of dentist's family**

A dental and nutritional expert will address delegates to the CDA national convention on "The Health of the Dental Family."

Emmanuel Cheraskin, professor and chairman of the Department of Oral Medicine, University of Alabama School of Dentistry, Birmingham, maintains that the dentist's health is often overlooked in today's frantic search to increase productivity.

Doctor Cheraskin's presentation is designed to summarize the health status of the dentist and his wife and to show possible avenues for change principally by simple nutritional techniques.

A native of Pennsylvania, Emmanuel Cheraskin received his MD in 1943 from the University of Cincinnati College of

Medicine, Ohio. In 1952 he graduated from the University of Alabama School of Dentistry.

### **Panel to examine GP-specialist relationship**

The relationship between specialists and general practitioners is the topic for a panel discussion set for Wednesday June 7.

Chairing the panel will be A. Bruce Hord, assistant dean and associate professor, Faculty of Dentistry, University of Toronto. Doctor Hord will represent the general practitioner.

Other panelists include K. M. Kerr of Bedford, NS, a prosthodontist, and Isadore Wolch of Winnipeg, an endodontist. Doctor Kerr is professor of prosthodontics, Dalhousie University, Halifax. Doctor Wolch is a lecturer in endodontics at the University of Manitoba and president of the Canadian Academy of Endodontics.

### **Specialty groups plan June meetings in Montreal**

A total of 12 groups, including six of the eight specialty societies affiliated with the national association, have scheduled June meetings in Montreal to coincide with the CDA session.

The Canadian Association of Orthodontists will meet June 4 to 7 at the Chateau Champlain, and the Canadian Society of Public Health Dentists plans a June 4 meeting. The Canadian Academies of Periodontology, Prosthodontics, Paedodontics and Restorative Dentistry will also hold meetings in Montreal.

Other groups getting together during the convention period include: the Canadian Society of Forensic Odontology, June 4 at the Queen Elizabeth Hotel; the Royal College of Dentists of Canada, June 4; the International College of Dentists (Canadian Section), June 5 at the Mount Stephen Club; the Canadian Forces Dental Service, June 6, and the Canadian Dental Hygienists Association, June 5 to 7 at the Sheraton Mount Royal. The Canadian Dental Nurses and Assistants Association has yet to announce the date of its Montreal meeting.

### **Fees and policy for registration**

The Canadian Dental Association has announced the following registration policy and fees for the 1972 national convention:

Dentists registering for the general convention will be charged \$45. No

additional charge will be made for wives taking part in the ladies' program. Hotel rooms are extra.

Canadian and foreign dentists and table clinicians will pay the full registration fee.

Invited international guests and CDA honorary members and their wives will be admitted free to the convention and social functions.

There will also be no registration charge to clinicians, CDA student members and non-dental Canadian delegates.

Dental students who are not CDA members will pay a \$5 registration fee. This fee entitles them to receive all benefits of CDA student membership for 1972-73.

Dental hygienists, assistants and commercial exhibitors will be admitted to the convention free of charge.

## **The Association**

### **Seek nominees for elective offices**

President-elect David K. Peters invites nominations for the following elective offices in the Association's councils which are to be filled at the 1972 meeting of the Board of Governors. Incumbents identified by an asterisk (\*) are eligible for re-election; others are not eligible for re-election.

Nominations may be made only by members of the Board of Governors, council chairmen, presidents or secretaries of provincial corporate members or secretaries of CDA sections. They must be received before March 1 and should be sent to David K. Peters, Chairman, CDA Council on Nominations, 103 Le Marchant Rd, St. John's, Nfld.

*President-elect*  
David K. Peters, St. John's, Nfld

*Chairman, Board of Governors*  
P. S. Christie, Halifax\*

*Executive*  
J. E. Abra, Winnipeg\*  
L. E. English, Kamloops, BC\*  
H. M. Jolley, Toronto\*  
W. J. Spence, Toronto

*Auxiliary Services*  
R. K. M. Federchuk, Oakville, Ont\*  
Sidney Silver, Montreal\*  
W. H. O'Driscoll, St. John's, Nfld

*Communications*  
K. I. Levinson, Toronto  
Adélar Leblanc, Valois, Que\*  
W. J. Spence, Toronto\*



*Constitution and By-laws*  
Rémy Langlois, Quebec City  
W. P. Munsie, Vancouver\*

*Dental Services*  
P. E. Currie, London  
W. W. Shortill, Winnipeg  
K. F. Walsh, St. John's, Nfld

*Education*  
N. L. Diefenbacher, Kitchener, Ont  
W. J. Dunn, London  
J. E. Speck, Toronto\*

*Ethics*  
J. M. Darcy, St. John's, Nfld

*Headquarters Property*  
R. A. Clappison, Toronto

*Hospital Services*  
K. C. Bentley, Montreal\*  
A. J. Harris, London  
G. K. Hurd, Kitchener, Ont\*

*Legislation*  
M. M. Derrick, Ottawa

*Nominations*  
R. O. Brett, Regina\*

*Public Health and Preventive Dentistry*  
S. G. Geldart, Edmonton\*  
N. J. Layton, Truro, NS

*Research*  
L. E. Francis, Montreal  
A. P. Angelopoulos, Halifax\*  
H. M. Dick, Edmonton\*  
Z. Kasloff, Winnipeg  
D. S. Moore, London  
N. R. Thomas, Edmonton\*

A member of the Executive Council must be a member of the Board of Governors. The term of office of a member of the Executive Council is two years; consecutive tenure on this council is limited to three terms of two years each. The term of office of members of other councils is three years; consecutive tenure on such councils is limited to two terms of three years each.

The Councils on Auxiliary Services and Dental Services consist of representatives from each provincial corporate member. On the nine member Council on Education, at least four are active faculty members of Canadian dental schools, and at least three have no direct affiliation with a school. Two members of this council are drawn from recommendations submitted by the Association of Canadian Faculties of Dentistry and the National Dental Examining Board of Canada; one is drawn from recommendations submitted by the Royal College of Dentists of Canada; and one is a provincial registrar.

The Council on Insurance and Investment consists of seven members representing British Columbia, the Prairie

Provinces, Ontario (three members), Quebec and the Atlantic Provinces. The Council on Nominations consists of three members and the president-elect is its chairman. Nominations for a member of this council are made from the floor at the Board of Governors meeting.

### **Americans will recognize CDA specialty programs**

The American Dental Association's Council on Dental Education, last December, voted to enter into a reciprocal agreement with the Council on Education of the Canadian Dental Association for the recognition of advanced specialty programs in areas recognized by the ADA and accredited by the CDA.

The CDA has now embarked on a specialty accreditation program and expects that the first survey will be completed by the spring of this year.

## **Canada and the Provinces**

### **Quebec bill would legalize mechanics**

New legislation to create a "Professional Corporation of Denturologists" was tabled in the Quebec National Assembly late last year. Bill 266 is one of 34 bills that are satellite to Bill 250 (the newly proposed Professional Code, as described on page 8 of the January Journal). All are designed to centralize and recast the role of the professions.

The new bill deals with dental technicians and "denturologists" (dental mechanics). It describes as "denturology" any act having the object of selling, supplying, fitting or replacing removable dental prostheses to replace natural teeth. Such acts are to be "reserved to denturologists." They would not be allowed to perform any act concerned with diagnosis and treatment of diseases affecting human teeth, mouths or jaws.

Article 14 of the bill provides that "nothing in this act or in the regulations . . . shall prohibit the sale or supply of dental prostheses to a dentist by a denturologist."

### **CDA Retirement Savings Plan**

Unit values of the Canadian Dental Association Retirement Savings Plan stood as follows on December 31, 1971:

*Fixed Income Fund* \$12.694;  
*Common Stock Fund* \$24.729.

### **Our Mistake**

The January Journal, on page 7, reported that CDA past presidents are to receive honorary associate membership on retirement from active practice. The correct version is that CDA past presidents are to receive *complimentary* associate membership on retirement from active practice.

Total assets (market value) of the plan were \$11,274,661.28.

There were no purchases or sales during the preceding month.

For further information please write to CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto 180, Ont.

## **International Items**

### **Doctor MacLean in Indonesia for CARE/MEDICO dental study**

Doctor and Mrs. H. R. MacLean, Edmonton, recently completed a month-long study of dental needs in Solo, Indonesia, on behalf of CARE/MEDICO Canada.

Doctor MacLean, former dean of the University of Alberta's Faculty of Dentistry, was president of the Canadian Dental Association in 1969-70. Margaret Berry MacLean is director of the School of Dental Hygiene at the University of Alberta.

A major objective of the couple's study was to determine the need and feasibility of adding a dental department to the new hospital soon to be built in Solo.

Upon completion of their project in Indonesia, the MacLeans travelled to Australia and New Zealand before returning to Canada.

### **FDI announces contest for an international symbol of dentistry**

CDA members have been invited by the Fédération Dentaire Internationale to submit designs for a symbol of international dentistry. All designs must be based on the motif "dentistry as an international health profession."

Designs should be in black, white and not more than one other colour. They should be suitable for reproduction on stationery, posters, publications, book





Recipients of fellowships at the September 30 convocation of the Royal College of Dentists of Canada held at the National Arts Centre, Ottawa, are pictured above (left to right): E. M. Hershenfield, Montreal; R. C. McClelland, Edmonton; A. D. Taliano, St. Catharines, Ont; W. S. Prusin, Toronto; G. I. Baker, Toronto; C. W. Oyer, Calgary; J. G. Zosky, Mississauga, Ont; H. J. Levin, Toronto; P. R. Morgan, Minneapolis, Minn; and J. A. Haws, Calgary.

covers and badges. The designs should be reasonably simple and devoid of any religious connotation (St. Appolonia as a symbol is unacceptable).

Six copies or photographs of the design should be mailed before April 1 to: G. H. Leatherman, Executive-Director, Fédération Dentaire Internationale, 64 Wimpole Street, London W1M 8AL, England.

The FDI Executive Committee, at its April meeting, will select three of the designs for submission at the General Assembly at the XV World Dental Congress, Mexico City, in October. The General Assembly will choose the best design and award a prize. Copyright in the winning design vests with the FDI.

### Our mistake

Instructions regarding 1971 federal income tax returns, published in the December 1971 Journal, should have stated that "The amount that is deductible in respect of contributions to a retirement savings plan is limited: (a) in the case of an employee receiving a salary who is covered by a registered pension fund or plan (whether or not he contributes to the pension fund) to the lesser of \$1,500 or 20 per cent of his earned income, minus the amount, if any, he is allowed to deduct from income for his contribution to the pension fund. . . ." The words, *the lesser of*, were omitted from the text in our December issue.

## Dental Organizations

### Occlusion seminar in Vancouver set for March

The Vancouver District Dental Society has scheduled a course in the principles of occlusion for March 1-4. N. F. Guichet, a diplomate of the American Board of Prosthodontics, will conduct the course.

Instruction is divided into two main sections: Occlusion I, dealing with the principles of occlusion, will be held March 1 and 2; and Occlusion II, dealing with occlusal equilibration, is scheduled for March 3 and 4.

The course is designed to provide a rationale of diagnosis and treatment based on an understanding of the causes of stress as related to dental disease. Stress induced by malocclusion can result in bruxism, pulpitis, cusp fracture, amalgam failure, ridge resorption, periodontal breakdown, temporomandibular joint pain and other complications.

The Vancouver group also plans four gnathological seminars, the first to be held March 5 and 6.

Further information on the course and seminars may be obtained from J. N. Nasedkin, Secretary, Vancouver District Dental Society, 409-925 W Georgia St, Vancouver 1, BC.

### Saskatchewan, Ontario raise CDA grant

Saskatchewan's College of Dental Surgeons has voted to increase its annual grant to the Canadian Dental Association from \$60 to \$65 per registered member in 1972. The decision was

made at the fall meeting of the college council. The Ontario Dental Association has also increased its grant from \$40 to \$55.

Seven provinces, besides Saskatchewan, will pay at the \$65 rate this year. They are British Columbia, Alberta, Manitoba, New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland.

A. W. Geisthardt, Regina, was elected president of the Saskatchewan College and C. R. Hill, Saskatoon, was named vice-president. F. R. Smith of Saskatoon continues as registrar-secretary-treasurer.

### Ontario association urges CDA to seek seat on accreditation council

The Ontario Dental Association will urge the Canadian Dental Association to reconsider seeking a seat on the Canadian Council on Hospital Accreditation.

In deciding this action at their November 27th meeting, ODA governors noted the stand taken by the association's Hospital Services Committee that representation on the CCHA is necessary to ensure proper recognition of dentistry in hospitals.

Ian E. Cato, Toronto, was appointed ODA secretary, succeeding K. F. Pownall who has become full-time registrar-secretary-treasurer of the Royal College of Dental Surgeons of Ontario. Mr. Cato was previously employed by Nestlé (Canada) Ltd as manager of the administration division.

In other actions, the Ontario association:

Recorded its opposition to the grouping of specialties; and

Accepted the principle of dental technologists as defined in the Wells Com-



mittee report, provided these auxiliaries are supervised by a dentist when dealing with the public.

D. L. Rife, Toronto, was named as an additional CDA governor from Ontario.

## Canadian Forces Dental Service

### Three officer cadets win awards

Thirty officer cadets completed the 1971 summer training session at the Canadian Forces Dental Services School, Base Borden, Ontario.

Achievement awards were presented to three cadets representing each of the three phases of the Service's dental officer training plan.

In the third phase of subsidized training Second Lt. J. C. R. P. Larose won the honour cadet award and Second Lt. R. A. Hodge was the second phase winner.

Best candidate award for the first phase of training went to Officer Cadet R. B. Johnson. First phase students received their military training at Canadian Forces Base Chilliwack.

A total of 28 new students have been accepted for the dental officer training plan's 1971-72 term.

### Dental officer promoted

Canadian Forces Headquarters recently announced the promotion of Maj. J. J. Y. Turcotte to the rank of lieutenant-colonel. A 1958 dental graduate of the University of Montreal, Lt.-Col. Turcotte is now at Doctors Hospital Medical Centre, Toronto, in his final year of oral surgery residency.

## Dental Education

### Royal College announces examination results

The Royal College of Dentists of Canada has announced the names of

dentists who passed examinations conducted last September and December.

Successful candidates in the Part I (Basic Sciences) examination held September 13 are:

*Oral Surgery*—W. W. Dowhos, Thunder Bay, Ont; G. L. Freedman, Montreal; B. M. Lyons, Windsor, Ont; M. E. Mickleborough, Edmonton; and E. Marks, Vancouver.

*Paedodontics*—L. B. Smith, Columbus, Ohio.

*Periodontics*—R. H. Johnson, London, Ont; P. D. Schuller, Collingwood, Ont; and R. S. Turnbull, Toronto.

*Prosthodontics*—R. J. Borris, Toronto.

*Dental Sciences (Radiology)*—D. L. Catena, Hartford, Conn; A. Ruprecht, Don Mills, Ont; and G. E. Longhurst, Los Angeles, Calif.

Candidates who were successful in the Part II (Oral) examination held December 3-4 are:

*Oral Surgery*—J. H. Gryfe, Weston, Ont; G. K. Hurd, Kitchener, Ont; Guy Maranda, Quebec City; E. Marks, Vancouver; H. Phillips, Toronto; and P. H. Trester, Vancouver.

*Radiology*—D. L. Catena, Hartford, Conn; and G. E. Longhurst, Los Angeles, Calif.

*Paedodontics*—R. L. Moran, Toronto.

### Educational opportunities

#### Continuing education

The University of Toronto Faculty of Dentistry is offering short postgraduate courses in paedodontics for general practitioners (April 5-7), orthodontics for general practitioners (April 10-14), recent advances in dental materials (April 24-25), radiology (April 24-27) and occlusion in restorative dentistry (May 2-5).

The course instructors are J. A. Hargreaves (paedodontics), R. O. Fisk (orthodontics), D. C. Smith (dental materials), H. G. Poyton and D. W. Stoneman (radiology) and J. H. Hibberd (restorative dentistry).

Tuition fees are \$150 for the orthodontic course and \$100 for each of the other courses. Direct inquiries to G. S. Beagrie, Assistant Director, Division of Postgraduate Education, Faculty of Dentistry, University of Toronto, 124 Edward St, Toronto 101, Ont.

## Economics

### Prepaid dental plan offered to Nova Scotians

The Nova Scotia Dental Service Corporation and Maritime Medical Care Inc have signed an agreement providing groups in Nova Scotia with a prepaid dental care plan. Various types of prepaid dental coverage are offered, with a variety of premiums and benefits.

The plan covers the full cost of diagnostic and preventive services.

Extractions, fillings, endodontic and periodontal treatment will be covered at 70 per cent.

Prosthodontics, including bridges and dentures, will be covered at 50 per cent.

The plan is endorsed by the Nova Scotia Dental Association, and is being jointly underwritten by the Nova Scotia Dental Service Corporation and Maritime Medical Care Inc. MMC will market and administer the program.

The premium for the plan is estimated at \$5.82 per month for a single person and \$13.68 for a family.

Orthodontics may be added to the plan as an additional option.

### Expect delay in Quebec child dental care

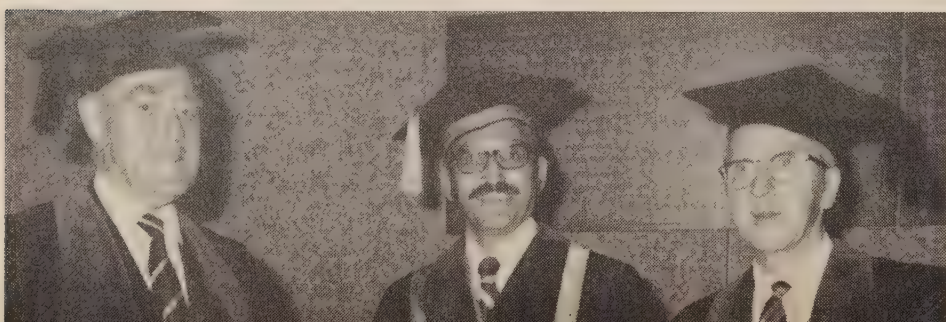
Free child dental care—scheduled by Quebec Social Affairs Minister Claude Castonguay to start February 1—may be delayed until March or April.

While legislation was passed last year to extend medical care insurance to cover child dental care, the legislation itself marked only the beginning of negotiations leading to its eventual application.

Talks between the Quebec Dental Surgeons Association and the government, begun last June, have dealt mainly with coverage thus far. Both sides have been working on a list of specific services which will be covered by the Quebec Health Insurance Board.

Once the list is completed, negotiations will begin on how much the Health Insurance Board will pay for each specific service.

Although the government legislation (Bill 69) did not mention age in the



A highlight of the September 30 convocation of the Royal College of Dentists of Canada was the presentation of two honorary fellowships. A. M. Hayes, Vancouver (centre), president of the College for 1970-71, congratulates the recipients of the honour H. R. MacLean (left) of Edmonton and L. E. MacLachlan of Ottawa. Doctor MacLean is a past president of the Canadian Dental Association.



A Hamilton, Ont, firm which leases equipment to dentists and physicians, Medi-Dent Services, recently marked its tenth anniversary with a \$1,500 gift to the Canadian Fund for Dental Education. Pictured above are (l to r): D. Murray McDonald, CFDE executive director; M. E. (Bud) Bower, chairman of the Fund's Board of Trustees; J. F. Schunk, president of Medi-Dent Services, and Lee W. Maddison, vice-president, marketing. The money will be used to help finance the Seventh Biennial Conference on Dental Research and Education to be held June 12 to 14 at Geneva Park, Ont.



dental care coverage, the Social Affairs Department plans to limit the coverage to children under eight years of age for the initial stages.

If the government sees the plan can be kept within budgetary projections, then the age limit will be increased gradually at a later date.

### Ontario to require continuing education for licence renewal

The Royal College of Dental Surgeons of Ontario recently voted to incorporate a compulsory continuing education requirement in its by-laws. The new provision requires a dentist to show proof of 50 hours of acceptable continuing education over a period of three years to obtain renewal of his licence to practise in Ontario. The new requirement becomes effective on January 1, 1973.

## Public Health

### National Health Week March 12-18

Canada's 28th annual National Health Week will be observed March 12-18. The Health League of Canada sponsors Health Week in cooperation with departments of health and education and many other organizations across the country.

Continuing education to promote and conserve health by all possible means is stressed during Health Week by radio, television, newspaper and magazine coverage and by talks given to service clubs and other organizations.

## Deaths

Baxter, Sidney James. 58. Amherst, NS. Dalhousie University, 1951. 22-11-71. Survived by Jean (wife); Hazel, Marjorie and Amelia (sisters); Joseph (brother); and Stephen and Kenneth (sons).

Conboy, James Harold. 71. Toronto. Royal College of Dental Surgeons of Ontario, 1922. 8-12-71. Survived by James H. and Alan R. (sons); Mrs. R. Martiniuk (daughter); and nine grandchildren.

Hay, Douglas Cecil. 67. Peterborough, Ont. University of Toronto, 1928. 14-11-71. Survived by Aileen (wife) and James (son).

Hersh, Harold Henry. 69. Montreal. McGill University, 1925. 29-9-71.

Marshall, Leslie Frederick. 72. Vancouver. North Pacific College, University of Oregon, 1923. 30-11-71. Survived by Bertha (wife); Doctor F. James, Doctor Robert E. and Doctor Donald G. (sons); Mrs. Jane Ferguson (daughter); Mrs. Winnifred Watson and Mrs. Vera Brownlee (sisters); and 18 grandchildren.

Porter, William Arthur. 81. Toronto. Royal College of Dental Surgeons of Ontario, 1918. 8-12-71. Survived by Sidney and Charles (brothers); Mrs. John Cleaver (daughter); William (son); John, Lori and Jodie (grandchildren).

Slone, Abram. 79. Ottawa. Royal College of Dental Surgeons of Ontario, 1919. 21-11-71. Survived by Jean (wife); Morton and Joel (sons); Moses, Leo and David (brothers); Mrs. MacLevin (sister); and five grandchildren.

Thomas, Herbert Edward. 85. Vancouver. Philadelphia Dental College, 1907. 1-12-71. Survived by Mrs. E. Curry (niece).

Wallace, Russell Ernest. 48. Winnipeg. University of Toronto, 1945. 27-11-71. Survived by Mary (wife); William and Robert (sons); Mrs. Elaine Gordon (daughter); Gilbert (brother); and Gordon (grandson).

## Awards and Appointments

F. J. Phillips, Brockville, is the recipient of a life membership from the International Prosthodontic Conference. The award followed his completion of a postgraduate course in prosthodontics at Dade County Research Centre in Miami. Doctor Phillips is a 1949 graduate of the University of Toronto's Faculty of Dentistry.

F. J. Phillips



S. O. Tebbutt

Stanley O. Tebbutt of Scarborough, Ont, was recently appointed vice-president of Dentsply Canada Ltd. He was previously operations manager for the company. In his new post, Mr. Tebbutt is responsible for the operation of Dentsply's Caulk Division.



La réunion annuelle du Bureau des Gouverneurs de l'Association Dentaire Canadienne aura lieu à l'hôtel Bonaventure de Montréal, du 1<sup>er</sup> au 3 juin 1972. Tous les membres de l'ADC peuvent assister aux séances.

Le congrès national de l'Association Dentaire Canadienne aura lieu du dimanche soir 4 juin au mercredi 7 juin.

## Congrès National

### En juin Montréal bouge pour le congrès de l'ADC

Montréal va bouger en juin lorsque 3,000 congressistes venant de toutes les parties du pays se réuniront pour le congrès de l'ADC version 1972.

La planification des diverses activités va bon train, et le programme réglé pour le Congrès national de l'Association dentaire canadienne qui doit se dérouler du 4 au 7 juin, de concert avec les Journées dentaires du Québec, offre un bon équilibre entre des études intéressantes et des activités sociales qui assureront une détente agréable.

Une série d'orateurs extraordinaires, en fait la crème des talents d'ici et de l'étranger discuteront des résultats de la recherche actuelle dans le domaine de la dentisterie et traiteront des possibilités d'applications pratiques de ces nouveaux concepts.

De nombreux ateliers, des cliniques et des films viendront compléter les séances d'information traditionnelle.

Le congrès s'ouvrira officiellement dimanche le 4 juin à 20h. à l'hôtel Bonaventure et se terminera mercredi le 7 juin tard dans l'après-midi.

Les congressistes bénéficieront à Montréal d'un service de première classe. La ville s'enorgueillit d'un grand nombre d'hôtels de luxe, la plupart d'entre eux situés près de l'hôtel Bonaventure qui servira de point de ralliement du congrès.

Toutes les réunions scientifiques du congrès se dérouleront sur un étage et les expositions commerciales seront situées tout près des sales où ont lieu les différentes activités du programme. Les conférenciers et les congressistes apprécieront les avantages d'un équipement sonore et d'éclairage à la fois moderne et efficace.

La réunion annuelle de 1972 du Bureau des Gouverneurs de l'ADC se déroulera du 1<sup>er</sup> au 3 juin à l'hôtel Bon-

aventure. La séance est ouverte à tous les membres de l'Association.

### Les Journées dentaires du Québec Au programme: pédodontie et chirurgie buccale

La pédodontie et la chirurgie buccale seront les principaux sujets traités pendant les Journées dentaires du Québec qui se dérouleront de concert avec le congrès national de l'ADC à Montréal.

Le programme mis au point par l'Association des Chirugiens-Dentistes du Québec consacrera une journée et demie à chaque discipline, soit pédodontie prévue le 5 juin et la matinée du 6, et chirurgie buccale prévue le mardi après-midi et toute la journée du mercredi.

Une seule exception à cet horaire: il y aura deux séminaires préalables au congrès qui se dérouleront dimanche le 4 juin. Murray Diner de la Faculté dentaire de l'Université de Montréal dirigera le séminaire de dimanche sur la pédodontie pendant que R. Yves Boivin et Edward Cree dirigeront celui qui porte sur la chirurgie buccale. Les Drs Boivin et Cree sont attachés à la Faculté de chirurgie dentaire de l'Université de Montréal et font tous deux partie du personnel de l'hôpital Notre-Dame.

Le plan détaillé du programme sur la pédodontie indique qu'il sera divisé en trois sessions d'une demi-journée chacune, de façon à permettre la répétition des diverses séances à des heures différentes. Ceci permettra aux congressistes qui ne peuvent assister à une séance d'en profiter quand même, un peu plus tard.

Le programme débute lundi matin à 9h. par une assemblée générale. Cette réunion vise à compléter le programme d'enseignement permanent commandité par le Collège des Chirugiens-Dentistes du Québec, et se poursuivra toute la journée du lundi ainsi que le mardi matin. Les conférenciers qui prendront part à cette assemblée

sont Gerald Albert, Georges Perreault et Victor Legault, tous trois du Département de pédodontie de l'Université de Montréal.

En même temps, dans une autre salle Leonardo Aberlardo, professeur adjoint à la Faculté dentaire de l'Université de Montréal dirigera des séances de démonstrations cliniques en pédodontie. Cette clinique qui se répétera pendant les trois demi-journées simulera les conditions idéales nécessaires à l'exercice de la pédodontie, et mettra en relief les activités du dentiste et de son personnel depuis le moment où l'enfant entre dans la salle d'attente jusqu'au moment où il quitte le cabinet dentaire.

Une présentation continue de films sur la pédodontie en plus d'un certain nombre de tables cliniques ayant pour but de compléter ou d'expliquer certaines techniques abordées au cours de la séance générale auront lieu de façon continue toute la journée du lundi et le mardi matin.

Enfin pour terminer en beauté ce programme de pédodontie, les congressistes pourront assister à une séance qui portera sur la dentisterie hospitalière.

C'est à 13.30h. mardi que débute le programme de chirurgie buccale par une assemblée générale qui couvrira les divers aspects de la chirurgie et insistera sur ses principes élémentaires, les techniques chirurgicales dans le cabinet dentaire et les complications post-opératoires. Les conférenciers pour cette séance qui doit être répétée mercredi matin et après-midi sont Claude Madore, Pierre Surprenant et Paul Mercier, tous trois du Département de chirurgie buccale à l'Université de Montréal.

En même temps, en un autre endroit, Antoine Raymond, professeur en chirurgie buccale et en anesthésiologie à la Faculté dentaire de l'Université de Montréal donnera une conférence sur les techniques hospitalières. Le Dr Raymond a déjà été président de la Société canadienne des chirurgiens buccaux.

Comme pour la pédodontie, il y aura présentation continue de films et de tables cliniques.

Pendant ces trois journées organisées



par les Journées dentaires du Québec un représentant officiel de la Régie de l'assurance-maladie du Québec sera sur les lieux, prêt à rencontrer de petits groupes qui veulent se faire expliquer la façon dont la régie collaborera avec la profession dentaire pour mettre sur pied un programme de soins dentaires couvert par le gouvernement provincial.

### Hans Sélyé et la Conférence Grieve

Hans Sélyé, chercheur de renommée internationale, auteur et conférencier, sera le conférencier du Mémorial Grieve au cours du congrès de l'ADC en 1972. Sa conférence, "Le développement du concept du stress de 1936 à 1972", est prévue pour lundi le 5 juin à 11.30h.



Le docteur  
Hans Sélyé

Né à Vienne, le Dr Sélyé est maintenant professeur et directeur de l'Institut de médecine et de chirurgie expérimentales à l'Université de Montréal. Son principal intérêt va aux corrélations et à l'approche holistique de la recherche médicale; il est certainement mieux connu pour la description qu'il donne de l'adaptation générale ou syndrome de "stress", un élément parmi la liste des nombreuses contributions qu'il a apportées à la médecine.

En ce moment sa recherche est surtout centrée autour de la prophylaxie des maladies cardiovasculaires et un groupe d'hormones qu'il appelle les "stéroïdes catatoxiques".

Le Dr Sélyé possède plusieurs doctorats en médecine, en philosophie et en sciences ainsi que 14 diplômes honoraires qui lui ont été décernés par des universités canadiennes et par 10 pays étrangers. Il est l'auteur de 26 volumes ainsi que de plus de 1300 articles parus dans des revues techniques.

### A la journée de l'éducation permanente: les concepts de la pratique moderne

Mardi le 6 juin se déroulera "la journée de l'éducation permanente" au congrès de l'ADC.

Ce programme d'une journée, pré-

senté par le Service dentaire des Forces armées canadiennes sera essentiellement une réunion clinique mettant en relief un large éventail de sujets devant rencontrer les besoins de l'omnipraticien d'aujourd'hui.

Le Col L. G. Craigie parraine le programme et le Major L. A. Reynolds en est le coordinateur général. Ces deux officiers sont affectés à l'Ecole des services dentaires des Forces armées canadiennes à la base Borden en Ontario.

Les exposés faits par ces militaires traiteront des concepts sur lesquels reposent la pratique dentaire moderne ainsi que les applications pratiques tirées de ces concepts.

Des cliniciens seront sur les lieux lors des différentes sessions qui aborderont des disciplines aussi diverses que la chirurgie buccale, la pathologie buccale, l'orthodontie, les prothèses fixes et amovibles, la périodontie et la dentisterie préventive. Un thérapeute qui procédera aux démonstrations pratiques et un expert en réparation de l'équipement feront aussi partie du groupe. D'une façon générale les cliniques du matin seront répétées l'après-midi. Les deux sujets suivants, l'orthodontie et les prothèses fixes seront traités en français.

Un sujet supplémentaire viendra compléter ce programme d'une journée présenté par les Forces armées canadiennes; il s'agit d'une présentation des découvertes de l'expédition à l'Île de Pâques, aventure canadienne qui eut lieu en 1965.

### Panel chargé d'étudier les relations entre spécialiste et omnipraticien

Les relations qu'entretiennent les spécialistes et les omnipraticiens feront l'objet d'une discussion en panel prévue pour mercredi le 7 juin.

A. Bruce Hord, doyen et professeur adjoint à la Faculté dentaire de l'Université de Toronto, présidera le panel où il représentera l'omnipraticien.

Parmi les autres participants à ce panel citons: K. M. Kerr, de Bedford, NE, qui est spécialiste en prothèses et Isidore Wolch de Winnipeg, spécialiste en endodontie. Le Dr Kerr est professeur en prothèses dentaires à l'Université Dalhousie de Halifax. Le Dr Wolch est conférencier en endodontie à l'Université du Manitoba et président de l'Académie canadienne d'endodontie.

### Un diététicien abordera la santé du dentiste et de sa famille

La présence d'un diététicien parmi la liste des orateurs qui prendront la parole au cours d'un congrès dentaire peut sembler farfelue. A moins que ce

diététicien ne soit Emmanuel Cheraskin, professeur et responsable du département de médecine buccale à la Faculté dentaire de l'Université de l'Alabama à Birmingham.

Le Dr Cheraskin parlera aux congressistes de la "Santé du dentiste et de sa famille", problème trop souvent laissé pour compte dans la quête frénétique d'une productivité accrue.

Il soutient que l'insistance que nous donnons aujourd'hui aux appareils qui accélèrent la vitesse et le rendement, les techniques qui requièrent souvent quatre mains et l'utilisation plus efficace d'un personnel auxiliaire laisse dans l'ombre un secteur bien particulier de la productivité dentaire, la santé du dentiste lui-même. Ceci constitue une erreur grossière car, dit-il, sans la présence du dentiste, tout le système s'écroule.

L'exposé du Dr Cheraskin a pour but de résumer l'état de santé du dentiste et de son épouse et d'indiquer les solutions possibles pour un changement qui serait surtout d'ordre alimentaire.

Ses travaux dans les domaines de la médecine, de la dentisterie et de la diététique lui ont valu une longue liste de récompenses et de prix scientifiques spéciaux dont plusieurs sur la scène internationale.

Le Dr Cheraskin est aussi l'auteur ou co-auteur d'un grand nombre de livres et de plusieurs articles publiés dans des revues techniques et scientifiques.

### En juin réunions de groupes de spécialistes à Montréal

Au total 12 groupes, comprenant six des huit sociétés affiliées à l'association nationale ont prévu des réunions en juin à Montréal lors du congrès de l'ADC.

L'Association canadienne des orthodontistes se réunira du 4 au 7 juin au Château Champlain, et la Société canadienne des dentistes-hygiénistes a prévu une réunion le 4 juin. Les Académies canadiennes de périodontologie, de prothèses dentaires, de périodontie et de dentisterie restauratrice tiendront aussi des assemblées à Montréal.

Parmi les autres groupes qui doivent se réunir pendant la période du congrès mentionnons la Société canadienne d'odontologie légale, le 4 juin à l'hôtel Reine Elizabeth; le Collège royal des dentistes du Canada, aussi le 4 juin; le Collège international des dentistes (section canadienne), le 5 juin au Club Mount Stephen; les Services dentaires des Forces armées canadiennes, le 6 juin; et l'Association des hygiénistes dentaires canadiennes, du 5 au 7 juin à l'hôtel Sheraton Mont-Royal. L'Association canadienne des infirmières et des assistantes dentaires n'a pas encore annoncé la date de sa réunion à Montréal.



## Bulletins de l'ADC en supplément au journal

L'Association Dentaire Canadienne publiera une série de trois bulletins visant à informer les dentistes canadiens des préparations du congrès de 1972 qui doit avoir lieu du 4 au 7 juin à Montréal.

Ces bulletins s'ajouteront aux articles mensuels paraissant dans le Journal de façon à donner les renseignements les plus précis sur les diverses activités prévues au cours du congrès. Des éditions en français et en anglais seront publiées simultanément.

Un exemplaire spécial du Journal, le 13<sup>e</sup>, et qui prendra la forme d'un guide complet des activités du congrès est dès maintenant en préparation.

N'attendez pas. Remplissez la formule d'inscription dans ce numéro du Journal et renvoyez-la avec votre chèque dès aujourd'hui. La date limite de la période d'inscription est fixée au 30 avril 1972.

## Coûts et modalités de l'inscription

L'Association Dentaire Canadienne a fixé les coûts et les modalités de l'inscription au congrès.

Les dentistes désirant participer au congrès général devront déboursier \$45. Les femmes des congressistes n'auront cependant rien à payer pour prendre part aux programmes d'activités féminines. Les chambres d'hôtel sont en plus.

Les dentistes canadiens et étrangers et ceux qui participent aux tables cliniques devront acquitter le plein montant de l'inscription.

Les invités internationaux, les membres honoraires de l'ADC ainsi que leurs épouses seront admis gratuitement au congrès et aux divers programmes sociaux.

On n'exigera non plus aucun frais d'inscription de la part des cliniciens des membres étudiants de l'ADC et des congressistes canadiens qui n'exercent pas dans le domaine dentaire.

Les étudiants dentaires qui ne sont pas membres de l'ADC ne paieront que \$5 pour frais d'inscription, cette somme leur donnant les mêmes avantages que les membres étudiants de l'ADC pour 1972-1973.

Les hygiénistes dentaires, les assistantes et les représentants de commerce seront admis gratuitement au congrès.

## L'Association

### Nouveau personnel à l'ADC

Le Dr W. G. McIntosh, Directeur général de l'Association Dentaire Canadienne, a annoncé la nomination de deux nouveaux membres au sein du personnel de l'Association. Ils sont entrés en fonction en décembre 1971.

Il s'agit de Diane Charter, de Newmarket, qui s'est jointe au titre de rédactrice des nouvelles du Journal de l'Association. Mlle Charter, qui est infirmière diplômée, a passé ses huit dernières années dans divers secteurs du journalisme, s'occupant toujours du domaine de la santé. De 1967 à 1969 elle a été rédactrice en chef de *Hospital Administration in Canada* à Southam, et plus récemment rédactrice du magazine *Canadian Hospital Journal*.

Stephen Bitten, de Toronto, a été nommé responsable de l'information publique au Bureau de l'information publique de l'ADC. M. Bitten a terminé ses études à l'Université de Guelph en 1968 où il a obtenu un diplôme en économie agricole. Après deux ans dans le domaine industriel, il s'est joint au personnel du Better Business Bureau de Toronto où il occupa le poste de chef de département des services de renseignements.

En tant que responsable de l'information publique, M. Bitten s'occupera des relations avec les gouvernements, les média et le public, prenant en main les charges confiées auparavant à la firme Carleton Cowan Public Relations.

Ces deux nominations avaient été approuvées par le Bureau des Gouverneurs de l'ADC en 1971 et sont le résultat direct de recommandations faites par Carleton Cowan dans une étude menée en 1969 sur les services de l'Association et d'une autre qui date de 1971 et qui avait été menée par la firme Thorne Group Management Consultants.

### L'ADC cherchera à obtenir une représentation aux agences nationales de la santé

Le Conseil Exécutif, lors de sa réunion du 7 au 9 décembre, a décidé que l'ADC devrait chercher à obtenir une représentation dans la majorité des agences nationales reliées à la santé. Cette décision a été prise de façon à augmenter l'influence de la dentisterie dans l'élaboration des programmes de santé et à promouvoir une conscience plus aigüe de la part de la profession quant aux clauses reliées aux soins dentaires contenues dans ces programmes.

Cette décision résulte d'un rapport indiquant l'absence totale de repré-

sentation de la profession dentaire lors de la formation récente d'un Conseil national de la santé, et de trois autres agences nationales traitant de centres communautaires de santé, d'octrois pour la santé nationale et d'accréditation des services de santé. Une des raisons de l'absence de représentation des dentistes est que "la dentisterie ne peut se décider si elle désire ou non s'associer aux programmes nationaux de santé", de dire le rapport. A titre d'exemple on peut citer le retard à mettre en route le Plan de santé dentaire pour enfants de l'ADC, et la difficulté d'obtenir l'appui des membres corporatifs pour la position de l'Association quant aux exigences requises dans les hôpitaux pour les services dentaires couverts par l'assurance-maladie.

Le conseil a aussi endossé une résolution supportant le principe de la participation par diverses associations volontaires de santé comme l'ADC dans l'accréditation des services que leurs membres respectifs rendent dans les hôpitaux. En tête de liste se trouve le Conseil canadien sur l'accréditation hospitalière. Quant aux autres groupes de santé visés, on peut mentionner l'Association Médicale Canadienne, l'Association des Médecins de Langue Française du Canada, le Collège Royal des Médecins et des Chirurgiens du Canada, l'Association des Infirmières Canadiennes, l'Association des Collèges de Médecine du Canada et la Fédération Canadienne des autorités de licence médicale.

Dans d'autres domaines, le conseil a:

—Mis sur pied un Comité spécial sur les programmes nationaux de santé qui doit émettre des recommandations spéciales sur des questions de principe lors de l'élaboration de tels programmes;

—Approuvé et mis entre les mains du Comité sur les programmes nationaux de santé une proposition touchant les centres communautaires de santé, proposition qui avait été émise lors de la Conférence nationale sur la main-d'oeuvre dans les disciplines de la santé à Ottawa du 19 au 22 octobre dernier. Les participants à cette conférence avaient recommandé "l'établissement d'une régie de centres communautaires de santé comme projet-pilote où un personnel adéquat de professionnels de la santé serait rémunéré de telle sorte que les incompatibilités des honoraires pour service rendu et du salaire seraient abolies";

—Approuvé le principe qui déclare que les ressources en enseignement des sciences de la santé comme un bien national. Le Conseil a référé cette décision au Conseil de l'enseignement à titre d'étude et a demandé au Comité national sur les programmes de santé de mettre au point le texte d'une politique temporaire;

—Insisté pour que le Conseil sur les services dentaires accorde priorité à ses études sur le rôle de l'Association



Dentaire Canadienne en relation avec les services dentaires rendus par l'entremise de l'assurance-maladie et l'assurance des soins dentaires;

—Supporté en principe la formation d'un Conseil national de la santé avec responsabilités consultatives et a offert la collaboration de l'ADC dans la formation et la mise en marche d'un tel conseil;

—Autorisé le Directeur général W. G. McIntosh à inviter officiellement la Fédération Dentaire Internationale à tenir son XVI Congrès dentaire mondial en octobre 1977 à Toronto;

—Nommé W. J. Spence, de Toronto, et Louis Bernier, Québec, comme représentants officiels de l'ADC au Conseil d'administration du Canadian Dental Service Plans Inc; et

—Recommandé que les anciens présidents de l'ADC reçoivent le titre de membre adjoint d'honneur lorsqu'ils quittent l'exercice privé.

Le Conseil a aussi accueilli favorablement une décision prise par l'Association Dentaire de l'Ontario d'augmenter la cotisation à l'association nationale à \$55 per capita en 1972. Mais à cause de certaines difficultés qui tiennent au fait que les cotisations des membres corporatifs ne sont pas établies sur une base uniforme, le conseil a aussi insisté pour que l'Association Dentaire de l'Ontario, le Collège Royal des Chirurgiens-Dentistes de l'Ontario et le Collège des Chirurgiens-Dentistes de la Province de Québec usent de leur influence pour augmenter le niveau des cotisations de l'Ontario et du Québec à \$65, et ce le plus tôt possible.

## Les organismes dentaires

### L'Ontario insiste pour que l'ADC demande un siège au conseil d'accréditation

L'Association Dentaire de l'Ontario insistera pour que l'ADC cherche de nouveau à obtenir un siège au Conseil canadien sur l'accréditation des hôpitaux.

En prenant cette décision lors de leur assemblée du 27 novembre, les gouverneurs de l'ADO ont noté l'orientation prise par le Comité des services hospitaliers de l'association, orientation selon laquelle la représentation au CCAH est nécessaire si l'on veut assurer une reconnaissance convenable de la chirurgie dentaire dans les hôpitaux.

Ian E. Cato, de Toronto, a été nommé secrétaire de l'ADO; il succède ainsi à K. F. Pownall qui est devenu secrétaire-régistrare-trésorier à plein temps du Collège Royal des Chirurgiens-Dentistes de l'Ontario. Monsieur Cato occu-

pait auparavant le poste de gérant administratif chez Nestlé (Canada) Ltée.

Dans d'autres domaines l'Association ontarienne a:

—Réitéré son opposition au regroupement des spécialités; et a

—Accepté le principe des technologues dentaires tels que définis dans le rapport du Comité Wells pourvu que ces auxiliaires soient sous la surveillance du dentiste lorsqu'ils traitent avec le public.

D. L. Rife, de Toronto, a été nommé comme délégué supplémentaire de l'Ontario au Bureau des Gouverneurs de l'ADC.

### Nouveaux administrateurs des dentistes hygiénistes

Le Dr Paul Simard de Lévis, Qué., succède au Dr R. E. Feasby de Toronto au poste de président de la Société canadienne d'hygiène publique. Frank McCombie, de Victoria, est nommé président désigné. A. T. Salter d'Edmonton est trésorier et J. M. Conchie, de Surrey (CB), garde son poste de secrétaire.

### La Saskatchewan augmente sa cotisation à l'ADC

Le Collège des Chirurgiens-Dentistes de la Saskatchewan a décidé de hausser de \$60 à \$65 la cotisation que chaque membre enregistré devra verser à l'Association Dentaire Canadienne pour 1972. Cette décision a été prise lors de l'assemblée que le conseil d'administration du collège a tenue en automne.

Outre la Saskatchewan, sept provinces paieront ce taux de \$65 par an. Il s'agit de la Colombie-Britannique, de l'Alberta, du Manitoba, du Nouveau-Brunswick, de la Nouvelle-Ecosse, de l'Île-du-Prince-Édouard et de Terre-Neuve.

## La fluoruration

### La fluoruration augmente la disponibilité des soins dentaires

D'après une déclaration contenue dans un document du Ministère de la santé de Terre-Neuve daté de 1970, "Il a été prouvé, et ce à maintes reprises, que grâce à la fluoruration, un nombre donné de dentistes pouvait soigner deux fois plus d'enfants que le même nombre de praticiens exerçant dans des centres ne disposant pas d'eau fluorée".

Terre-Neuve est l'une des quatre provinces canadiennes à offrir un appui financier pour la fluoruration. Les autres

sont la Nouvelle-Ecosse, le Québec et le Nouveau-Brunswick.

A Terre-Neuve et au Labrador le gouvernement défraiera 50 p.c. des coûts de mise en marche et d'entretien des installations qui fourniront de l'eau potable fluorée.

## La santé publique

### Semaine nationale de la santé du 12 au 18 mars

La 28e Semaine nationale de la santé aura lieu du 12 au 18 mars au Canada. La Ligue de la santé du Canada commandite cet événement en collaboration avec les différents ministères de la santé et de l'éducation et d'autres organismes à travers le pays.

Tous les moyens modernes de communication seront utilisés pendant cette Semaine de la santé pour insister sur l'éducation du public et viseront à promouvoir et à conserver la santé par tous les moyens possibles. Citons par exemple la radio, la télévision, les journaux et les magazines ainsi que différentes allocutions prononcées devant les clubs sociaux et autres organismes.

## L'économie

### Cliniques de prothèses en Ontario

Un réseau de cliniques coopératives où l'on offrira des prothèses dentaires à bas prix est en train de s'ouvrir, et ce grâce à la profession dentaire, dans les grands centres à travers la province. C'est ce qu'a annoncé l'Association Dentaire de l'Ontario le 16 décembre.

D'après le Dr L. J. Schiller de Windsor, président de l'ADO, ces cliniques offriront des prothèses de qualité égale à celles dispensées par les dentistes et à des coûts inférieurs de \$100 à ce qu'elles coûtent actuellement.

Allant de pair avec cette déclaration, le Collège Royal des Chirurgiens-Dentistes de l'Ontario a annoncé qu'il créait une nouvelle catégorie d'auxiliaires qui assisteraient les dentistes dans les travaux de prothèses.

De plus on a demandé au ministère de la santé de l'Ontario d'approuver un nouveau cours d'une durée d'un an et qui serait accessible aux techniciens dentaires enregistrés; ces techniciens suivraient un entraînement qui augmenterait leurs qualifications et leur donnerait le titre de "thérapeutes en prothèses dentaires".



N. L. Diefenbacher, président du CRCDD, a déclaré que ces thérapeutes auraient la compétence voulue pour recevoir les patients, prendre les empreintes et l'enregistrement de l'occlusion, et modeler les prothèses complètes, inférieures et supérieures, sous la surveillance d'un dentiste. Ces thérapeutes ressembleraient aux technologues dentaires que préconisait le Comité Ad Hoc Wells sur les auxiliaires dentaires.

Le Dr Diefenbacher a déclaré que le nouveau cours avait pour but de former un personnel clinique extrêmement qualifié dont le travail réduirait les dépenses des dentistes en faisant assumer aux thérapeutes certaines tâches jusqu'ici confiées aux dentistes. Ce programme aurait donc comme avantage d'être moins coûteux pour le public tout en ne sacrifiant pas la qualité du service dentaire rendu.

Les thérapeutes en prothèses dentaires travailleraient sous la surveillance d'un dentiste qui reste entièrement responsable du bien-être du patient, d'ajouter le Dr Diefenbacher. Il a de plus déclaré qu'ils recevraient une formation en anatomie, en techniques cliniques intra-buccales et autres sciences biologiques.

Le Dr Schiller a déclaré que ces cliniques de prothèses seraient d'abord installées à Toronto, Hamilton, Windsor, Oshawa, Ottawa, St. Catharines, Sudbury et Peterborough. Les honoraires seraient de \$180 pour des prothèses complètes du haut et du bas, comparés aux honoraires normaux de \$280, de déclarer le Dr Schiller.

Le président de l'ODA a déclaré que la profession initiait ces cliniques de prothèses à bas prix afin de satisfaire un besoin public qui existe déjà. Il a souligné que la qualité des prothèses fournies par les nouvelles cliniques serait la même que celles prescrites par le praticien privé. Les patients ne recevront cependant pas la même attention personnelle et individuelle que pourrait leur donner leur dentiste de famille.

### **L'inscription en vue de l'addition du programme de médicaments au régime d'assurance-maladie est en marche**

L'inscription des quelque 2,500 pharmaciens et 1,200 pharmacies du Québec a commencé au début de novembre. C'est ce qu'a annoncé M. Auguste Mockle, directeur des Affaires pharmaceutiques de la Régie de l'assurance-maladie, organisme qui aura la responsabilité d'administrer pour le compte du ministère des Affaires sociales le programme de médicaments défini dans la loi numéro 69, sanctionnée le 18 juin dernier.

Le programme comprend les services et médicaments fournis par les

pharmaciens sur ordonnance d'un médecin ou d'un chirurgien-dentiste, à toute personne qui bénéficie de l'aide sociale ou d'une allocation en vertu de la Loi des allocations aux aveugles ou de la Loi d'aide aux invalides, ou qui reçoit le maximum du supplément de revenu accordé à titre de sécurité sur la vieillesse. Le nombre de personnes qui bénéficieront de ce programme est estimé à 650,000. La date d'entrée en vigueur de cette mesure reste à être fixée.

L'inscription des pharmaciens et des pharmacies se fait au moyen de formules préparées à partir de données transmises à la Régie par le Collège des pharmaciens du Québec. On compte parmi les pharmaciens un certain nombre de médecins autorisés par la loi à pratiquer en qualité de pharmacien.

Il est prévu que la phase d'inscription, dont le but est de bâtir un fichier central qui facilitera l'émission des paiements dans les délais qui seront prescrits et à des professionnels dûment autorisés à fournir les services assurés, aura été complétée vers la mi-décembre.

### **Un professeur réclame un ombudsman de la santé**

Un économiste politique a demandé la création d'un ombudsman de la santé non seulement pour aider les patients, mais aussi les médecins qui seraient privés de certains privilèges hospitaliers, les infirmières ainsi que les médecins et les thérapeutes impliqués dans des conflits interprofessionnels.

J. T. McLeod, du Département d'économie politique de l'Université de Toronto, a déclaré que le consommateur de même que les professionnels de la santé devraient siéger au comité consultatif du ministre de la Santé de l'Ontario.

Il a déclaré à l'assemblée de l'Association hospitalière de l'Ontario le 26 octobre que dans les conditions présentes, le consommateur est impuissant et n'a aucun moyen adéquat de faire valoir ses intérêts et ses besoins.

"Les médecins et les technocrates dirigent le système de santé", a-t-il dit. "Ils ont la main haute sur la distribution des licences, les normes de qualité, les politiques d'admission dans les facultés de médecine, les honoraires médicaux et par là le coût des services de santé, les admissions dans les hôpitaux et les hôpitaux eux-mêmes, le rôle et les fonctions des infirmières, des optométristes, des psychologues cliniques, des pharmaciens, des physiothérapeutes et des techniciens en laboratoire".

Il a ajouté: "Un des faits les plus frappants lorsqu'on considère ce sys-

tème de santé, c'est que les technocrates et les médecins ne sont responsables devant personne sauf eux-mêmes".

Le professeur McLeod a dit qu'il n'attaquait pas les médecins et qu'il ne voulait pas non plus suggérer que le système de santé soit entièrement dirigé par les patients. Mais les professionnels ne devraient pas être à même de contrôler à la fois les moyens et les méthodes, les buts et les objectifs. Dans toute démocratie, le professionnel doit contrôler les moyens mais il doit laisser le reste de la communauté décider des fins. Et il a ajouté que les jours où les professionnels pouvaient établir leurs honoraires sans négociation sont dépassés depuis longtemps.

### **Les dentistes australiens appuient un système conventionné de soins dentaires**

Selon A. G. Bloomfield, président de l'Association Dentaire Australienne, son association mettra sur pied un programme sans but lucratif de soins dentaires conventionnés. Cet organisme créera une corporation nationale possédant des succursales dans tous les états australiens, succursales ayant pour but d'offrir un programme complet de soins dentaires aux groupes de personnes qui le désireraient. Le programme ressemblera presque en tout point à celui offert par le système américain "American Delta Dental Plan".

Grâce au plan, un membre ne paierait que 25 p.c. des honoraires du dentiste de son choix et le fonds rembourserait la différence. Le bénéfice minimum serait de 75 p.c. La contribution à ce plan serait d'à peu près \$5 par mois pour le membre et sa famille et serait payée par l'employeur, le syndicat ou tout autre organisme auquel appartient le membre en question.

### **Régime d'épargne-retraite de l'ADC**

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 31 décembre 1971:

Fonds à revenu fixe \$12.694;

Fonds d'actions ordinaires \$24.729.

L'avoir total (valeur marchande) du régime se montait à \$11,274,661.28.

Au cours du mois précédent, nous n'avons pas fait d'achats ni de ventes.

Pour de plus amples renseignements, veuillez écrire à: CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto 180, Ont.



## Control of post-extraction bacteraemias in the penicillin-hypersensitive patient

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*Patients who are allergic to penicillin often present a problem for their dentist or physician as to the choice of an alternative antibiotic. In the case of oral surgery, when the patient also suffers from cardiac defects, the choice is very limited, since most alternatives to penicillin used to prevent post-extraction infection are not as effective. This article describes the results of tests on two antibiotics, lincomycin and clindamycin, conducted on 100 patients divided into groups. One hundred patients were also selected as a control for comparison. A reasonable degree of success was achieved with clindamycin which was apparently the more effective drug.*

*Le dentiste ou le médecin a souvent à choisir un antibiotique spécial lorsqu'il reçoit un patient qui est allergique à la pénicilline. En chirurgie buccale, lorsque le patient souffre aussi de troubles cardiaques, le choix est très limité puisque les autres médicaments qui pourraient remplacer la pénicilline et qui sont utilisés pour empêcher l'infection post-opératoire ne sont malheureusement pas aussi efficaces. Cet article décrit les résultats obtenus à partir de tests effectués sur deux antibiotiques, la lincomycine et la clindamycine, tests appliqués à 100 patients divisés en groupes. Cent autres patients furent aussi choisis comme groupe témoin. On a obtenu un succès relativement satisfaisant avec la clindamycine qui s'est avérée le médicament le plus efficace des deux.*

Most readers are familiar with the development of transient bacteraemias after oral surgery.<sup>1, 2</sup> In the normal healthy patient this has no importance as the organisms are rapidly cleared from the blood, and there are no untoward effects. On the other hand, organisms introduced into the blood stream of a patient with defective or damaged heart valves present a serious hazard as there is always the possibility that endocarditis may result.<sup>3</sup> Dentists should therefore be well aware of the dangers of oral surgery to patients with cardiac valvular prostheses or suffering from chronic valvular heart disease or impaired defence mechanisms. Chronic valvular heart defects include pulmonic stenosis (of congenital origin), mitral stenosis (of rheumatic origin), aortic stenosis (arising from syphilis) and mitral or aortic stenosis (due to arteriosclerotic changes). Impairment of the natural defence mechanisms may arise from immunosuppressive drugs (as used in renal transplants) or from blood dyscrasias resulting in hypogammaglobulinaemia.

Penicillin has long been the preferred antibiotic to protect cardiac patients about to undergo traumatic dental procedures. Because it has been widely used for many years, the oral microflora has developed penicillin-resistant strains<sup>4</sup> and many patients have become allergic to the drug. The purpose of the present investigation was to determine whether it may be necessary to replace penicillin for the prevention of post-extraction bacteraemia. For this reason lincomycin and clindamycin were studied.

Because of modern advances in medicine and dentistry there are more types of susceptible patients presenting for dental treatment. It is common to carry out exodontic or other more serious surgical procedures on elderly patients who have varying degrees of arteriosclerosis. They would be susceptible to the development of endocarditis as a result of blood contamination from some operative interference, even when there is no previous history of cardiac pathology.

With the development of cardiac surgery to correct many of the chronic cardiac valvular defects special mention should be made of the patient with the prosthetic heart valve who runs a considerable risk of en-



docarditis after dental treatment. There is general agreement among cardiologists that such patients should receive vigorous prophylactic antibiotic therapy and hospitalization when oral surgery is contemplated.<sup>5</sup>

Patients with impaired defence mechanisms are very susceptible to all infection. Because of lowered or absent immune response they cannot cope with bacteria which are introduced into the circulation during dental treatment. Focal infections may therefore result in any tissue, particularly bone marrow and brain tissue.

### Antibiotic agents

In a recent review, Myall and Gregory<sup>6</sup> discussed the current trends in prophylactic antibiotic therapy for the dental patient and suggested erythromycin as a penicillin substitute. For patients who cannot tolerate penicillin the choice of antibiotic has always been a difficult one as other antibiotics do not give such complete protection.

In the past the penicillin-hypersensitive patient has been covered with either erythromycin or tetracycline given orally (American Heart Association).<sup>7</sup> Khairat<sup>8</sup> has shown that these have a limited protective value. Despite some protection he indicated that a hazard still exists for 50 per cent of patients using either of these two agents. With intravenous tetracycline the percentage of cases showing positive cultures was markedly reduced. However, this is not a practical route of administration for the general practitioner, and since only very few patients receive dental treatment in hospitals the oral or intramuscular route is preferred.

The most encouraging antibiotic for office practice is lincomycin (Lincocin, Upjohn). This is a narrow spectrum agent which is similar in the scope of its antibacterial activity to penicillin and erythromycin and is administered orally. Lincomycin has an affinity for osseous tissue and good results have been obtained in the treatment of both chronic bone and soft tissue infections of the face.<sup>9</sup> Since apical infections involve bone, it is possible that this antibiotic kills organisms at the site before the bloodstream is invaded.

One of the side effects of lincomycin is that diarrhoea is experienced by some patients. This is often very severe and limits its use, particularly in the debilitated patient. Because of this, 7-chlorolincomycin or clindamycin (Dalacin "C", Upjohn) was developed. Clindamycin has the same antibacterial spectrum and results in high concentration in bone but it is tolerated better by most individuals.

### Materials and methods

One hundred patients were used as controls and 100 patients divided into groups were treated prophylactically with the antibiotics. The patients were selected at random from those presenting for emergency treatment at the McGill dental clinic of the Montreal General Hospital irrespective of age, sex or extent of oral surgery. All had poor oral hygiene based on the Greene-Vermillion Simplified Oral Hygiene Index.<sup>10</sup>

The patients were anaesthetized with mepivacaine (Carbocaine) and a vasoconstrictor and the extractions were carried out without further oral preparation. Immediately following surgery the skin was sterilized with alcohol and 40ml of blood was taken from the cubital vein using the Beckton Dickinson sterile blood taking unit and vacutainer bottles containing trypticase soy broth and carbon dioxide. Twenty ml of blood were collected in each bottle and oxygen (air) added to one to create aerobic conditions while providing anaerobic conditions in the other. An additional 10ml of blood were obtained from those receiving the antibiotic. These specimens were collected in a separate tube and allowed to clot. The serum was removed and stored at  $-4^{\circ}\text{C}$  for subsequent antibiotic assay.

The blood culture bottles were incubated at  $37^{\circ}\text{C}$  and observed for evidence of bacterial growth. When this was suspected, usually from the tenth to fifteenth day of incubation, the bottles were opened and a 5ml sample of each was extracted and centrifuged for 10 minutes at 3,000rpm. The sediment was examined microscopically and cultured on blood agar plates both aerobically and anaerobically. If there was no evidence of growth the bottles were incubated to the end of the twenty-first day and the examination repeated before the cultures were listed as negative. Any bacteria which were isolated were identified by appropriate bacteriological methods.

The antibiotic assay of the serum from the patients receiving lincomycin or clindamycin was done by the agar-well method.<sup>11, 12</sup> The medium used was Antibiotic Medium No 11 (Fisher) and the test organism was *Sarcina lutea* ATC 9341. The standard solutions of lincomycin and clindamycin were prepared in pooled human serum. The test sera were stored until completion of the investigation and the assay was carried out simultaneously on all specimens. The zones of inhibition were read by the Fisher-Lilly Antibiotic Zone Reader.

### Results

#### Control group

Forty-nine per cent of the patients not receiving antibiotics or medication of any kind had positive blood cultures. The bacteria isolated are indicated in Table 1. All but two of the patients had single extractions. However, the number of teeth extracted is not an influencing factor in the occurrence of bacteraemia.

#### Treated groups

**Lincomycin** — Twenty-five patients were given lincomycin. The oral dose consisted of 1.5Gm a day in three divided doses for a period of three days before surgery and 500mg one hour before extraction. Following surgery the patient was instructed to take 500mg at four hour intervals at home. Four patients (8 per cent) showed positive cultures. These were all from individuals with single extractions. The results are shown in Table 2.



**Organisms isolated from 49 positive blood cultures obtained from control group subjects who received no medication**

**Table 1**

| Bacterial species        | Per cent of strains isolated |
|--------------------------|------------------------------|
| Peptostreptococci        | 20                           |
| Diphtheroids (aerobic)   | 10                           |
| Diphtheroids (anaerobic) | 7                            |
| Micrococci               | 15                           |
| Veillonella              | 13                           |
| Bacteroides              | 10                           |
| Alpha streptococci       | 9                            |
| Fusobacteria             | 6                            |
| Enterococci              | 6                            |
| Actinomyces              | 4                            |

**Clindamycin** — Two dosage schedules were used in this series: prolonged and shortened medication. In all instances the clindamycin was administered orally in 150mg capsules. Its absorption is not influenced by the presence of food in the stomach but on inquiry most patients had eaten very little food the morning of surgery.

**Prolonged medication** — 25 patients were given 600mg of clindamycin a day in four divided doses for three days before surgery. Two hours before surgery they received 300mg. In this series all blood cultures were negative.

**Shortened medication** — prolonged medication is inconvenient and expensive and the patient cannot always be relied on to take his capsules at home. Many patients failed to appear the next day at the clinic for their surgery, possibly because the acute situation had subsided as a result of the antibiotic therapy. It is therefore a distinct advantage if the patient can be adequately protected by a single dose of the antibiotic administered prior to surgery. Fifty patients were each given 300mg of clindamycin two hours before being anaesthetized. In this series four (8 per cent) of the patients had positive blood cultures. The results are listed in Table 3.

#### *Antibiotic assay of serum*

There was no significant difference in the antibiotic serum levels of the patients in the two clindamycin series. Those receiving the prolonged medication had an average serum level of 2.6mcg/ml of clindamycin

while the level of those receiving a single dose had an average of 2.5mcg/ml. Of interest is the variation in the degree of absorption of the antibiotic from the stomach. In both series a high concentration of 5mcg/ml was obtained in two patients and no titratable antibiotic could be found in the serum of two others.

A similar pattern of low and high concentration was seen in the lincomycin serum assay. The average level was 1.7mcg/ml of serum.

#### **Discussion**

The micro-organisms isolated in this investigation are those commonly found in the gingival sulcus. The anaerobic species are more prevalent in periodontal disease. All of the patients studied had varying degrees of this condition which emphasizes the fact that invasion of the bloodstream by oral microflora is directly dependent on the condition of the gingiva surrounding the tooth to be extracted. The micrococci might be considered skin contaminants but since strict aseptic technique was used in obtaining the blood samples they are included in the list of organisms introduced into the bloodstream.

No pre-operative blood cultures were taken because they contribute nothing to the investigation. Wiesenbaugh<sup>13</sup> found such cultures negative in an earlier study. For the sake of the patient's comfort this procedure was therefore omitted.

The alpha streptococci are the commonest cause of bacterial endocarditis but other bacteria may also be involved and all of the isolates are potential pathogens. The cardiac patient with a valvular prosthesis is particularly vulnerable because any of the organisms caught in the underlying tissue of the prosthetic valve may trigger a low grade infection which subsequently weakens the sutures holding the valve in place. Archard and Roberts<sup>5</sup> report autopsies on two patients in which such sequelae resulted from dental procedures.

Both lincomycin and clindamycin significantly reduced the incidence of post-extraction bacteraemia. The positive blood cultures obtained from the treated patients may be due either to a low concentration of antibiotic in the blood or resistance of the bacterial species isolated. Of the two antibiotics clindamycin was the more satisfactory drug. Clindamycin was well tolerated and none of the patients complained of any side effects. On the other hand, many patients receiving lincomycin complained of diarrhoea, varying from

**Organisms isolated from patients receiving lincomycin**

**Table 2**

| Patient | Bacterial species isolated | Lincomycin sensitivity (2mcg discs) | Concentration of lincomycin in serum |
|---------|----------------------------|-------------------------------------|--------------------------------------|
| 1       | Strep salivarius           | Sensitive                           | 0                                    |
| 2       | Strep salivarius           | Sensitive                           | 0                                    |
|         | Bacteroides species        | Resistant                           |                                      |
| 3       | Micrococci                 | Sensitive                           | 0                                    |
| 4       | Micrococci                 | Resistant                           | 0                                    |
|         | Neisseria sicca            | Resistant                           |                                      |

**Organisms isolated from patients receiving a single dose of 300mg clindamycin**

**Table 3**

| Patient | Bacterial species isolated | Clindamycin sensitivity (2mcg discs) | Concentration of clindamycin in serum |
|---------|----------------------------|--------------------------------------|---------------------------------------|
| 1       | Aerobic diphtheroids       | Resistant                            | 1.75mcg/ml                            |
| 2       | Aerobic diphtheroids       | Sensitive                            | 1.125mcg/ml                           |
| 3       | Micrococci                 | Sensitive                            | 0                                     |
| 4       | Micrococci                 | Resistant                            | 1.5mcg/ml                             |



mild to very severe. Patients in this series who had positive cultures also gave low serum levels or no titratable antibiotic, and we suspect that many did not take their medication.

In the case of the prolonged medication the low serum level could possibly be explained again by the failure of the patient to take the antibiotic. However, the single dose of 300mg of clindamycin was administered by a nurse and there was no possibility of the patient not receiving the drug. This emphasizes the fact that with all oral medication there is always a variation of absorption in individuals because of the wide range of differences in temperament and gastric flow. In fact, the stomach is one of the least reliable areas to administer a drug but it is one of the safest.

Wiesenbaugh,<sup>13</sup> who compared penicillin G and clindamycin as prophylactic antibiotics, found that clindamycin was a suitable substitute for penicillin as a protective agent. However, no explanation was offered for the 6 per cent failure rate using clindamycin and the 12 per cent failure rate with penicillin. Antibiotic serum levels were not determined.

Although this investigation concerned cardiac patients, bacterial invasion of the bloodstream, particularly by the anaerobes found in the mouth, can be equally dangerous for other individuals, above all the debilitated and the malnourished. Focal infections may result in other parts of the body. Recently Butas et al<sup>14</sup> reported a case of disseminated actinomycosis. Although they did not say so, the mouth was probably the source as the teeth were said to be in "poor condition." Losli and Lindsey<sup>15</sup> have also described two cases of fatal dental sepsis in patients with no known cardiac disease. Therefore the individual's physical status as well as the condition of the gingival tissue must be carefully considered. When the patient is in poor health and has advanced periodontal disease, penicillin or clindamycin in the appropriate doses should be given prophylactically before any oral surgery is undertaken.

## Summary

Lincomycin and clindamycin were investigated as prophylactic agents for the prevention of post-extraction bacteraemias. Clindamycin proved to be the most effective antibiotic and was well tolerated by the patients.

When antibiotic prophylaxis is indicated clindamycin may be used as a penicillin substitute for the patient's protection during traumatic dental procedures.

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# Pemphigus vulgaris: The role of the dentist in its management

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*Pemphigus vulgaris is one of a group of diseases that are manifested by blisters on the skin and mucous membranes. It is usually first perceptible in the mouth, so the dentist should be familiar with the disease in order to treat it at an early stage.*

*Le pemphigus vulgaire fait partie d'un groupe de maladies dont les manifestations extérieures se traduisent par l'apparition de vésicules sur la peau et les muqueuses. Il apparaît d'abord dans la bouche et le dentiste devrait donc connaître à fond cette maladie de façon à la traiter au tout début de son développement.*

Pemphigus literally means blister. This word designates certain diseases which are characterized by successive crops of bullae on the skin and mucous membranes. In some cases lesions of the oral mucous membrane are an early, prominent manifestation and the dentist should therefore be able to recognize the conditions and participate in their treatment.

Our understanding of the commonest type, pemphigus vulgaris, has changed considerably with the availability of new information. Auspitz,<sup>1</sup> and later Civatte,<sup>2</sup> observed the breakdown of intercellular bridges, epithelial cell degeneration, and intercellular oedema with bullous formation in the prickle cell layer. They considered these as the primary changes in pemphigus vulgaris and referred to the process as acantholysis, from the Greek "akantha" (prickle) and "lysis" (dissolution). Electron microscope studies<sup>3,4</sup> and fluorescent labelling techniques<sup>5</sup> suggest that degeneration of the intercellular cement of the supra-basal cell layer is the primary defect, probably initiated by an auto-immune reaction. Breakdown of the intercellular bridges (desmosomes) and intracellular changes (tonofibril retraction) follow the primary cement dissolution. The basal cells also lose their desmosomes but the half-desmosomes which anchor them to the basement membrane are not altered and the junction remains intact.<sup>6</sup>

The following case history illustrates some of the details with which the dentist should be familiar if he is to treat successfully cases of pemphigus vulgaris.

## Case history

A 52 year old white male patient had sought treatment for skin lesions and a sore mouth for over a year. The first symptoms were an itchy scalp, abnormal axillary perspiration and unpleasant sensations in his throat. These were diagnosed as "folliculitis of the scalp and axillary regions" and "cricopharyngeal spasms due to anxiety." Next he developed mouth



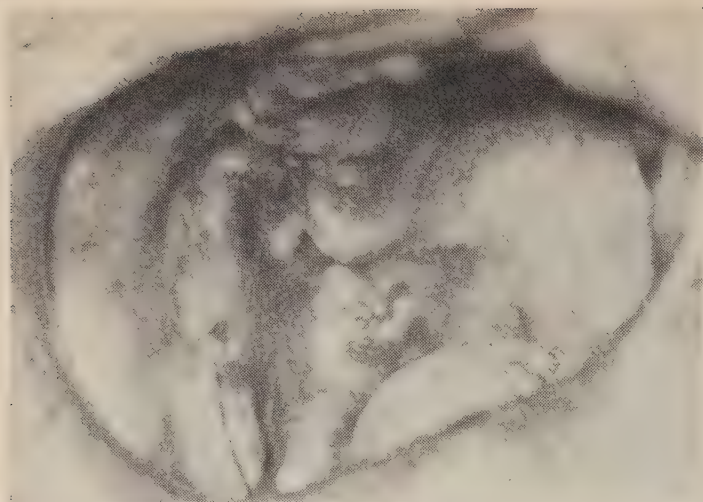


Fig 1 Extensive erosions and painful ulcers on the alveolar ridge, buccal mucosa and soft palate.

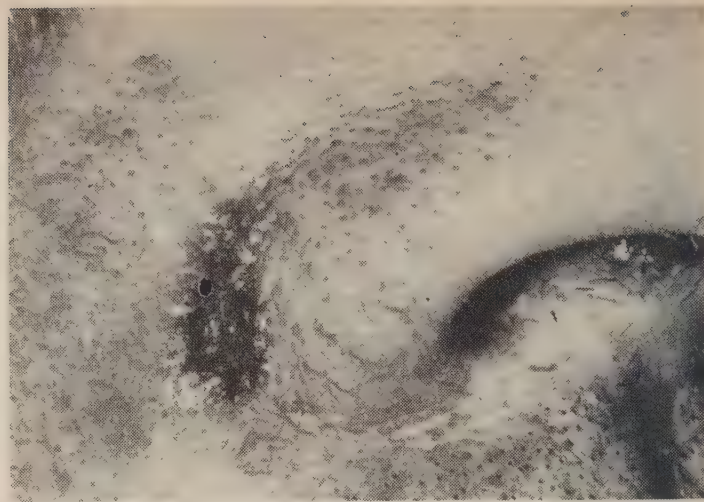


Fig 2 Nose lesion. The patient also had erosions and ulcers on the scalp and mucous membrane of the penis.



Fig 3 Chest lesions. Note the extensive red areas with deeper red blotches in the upper half of the photograph compared with the lighter normal skin in the lower left corner.

sores (Fig 1). His throat improved but lip, nose, scalp, back, chest and penis lesions appeared (Fig 2, 3). The skin lesions were described as a "fairly generalized papular skin eruption" and a "weeping eczema of the back." The latter was reported to have healed within 10 days with the help of local medicaments.

Because of the persistent mouth ulcers, his dentist referred him to a periodontist who in turn referred him to an oral pathologist. Exfoliative cytology smears were taken at the border of one of the ulcers on the hard palate. The surface epithelium seemed to slide off, leaving a bright red but non-bleeding surface. The cytological report was in the "suspicious" category for carcinomatous change and a tentative diagnosis of pemphigus vulgaris was made. Biopsy specimens were obtained for microscopic examination from the maxillary alveolar ridge and the cheek. The pathologist's report spoke of "inflammation, oral mucosa, subacute," and noted that "there is some oedema but

no bullous formation to suggest pemphigus." The oral pathologist concluded that the cytological and microscopic findings were compatible with a diagnosis of pemphigus vulgaris.

The patient, who had earlier been advised by his dermatologist to have his remaining teeth removed, was persuaded to await a definite diagnosis of his condition. A second dermatologist took a skin biopsy from the chest which confirmed the diagnosis of pemphigus vulgaris. He accepted the patient for systemic treatment with steroids. Within two days there was considerable improvement (Fig 4) on 50mg prednisone per day. The dose was reduced to 40mg/day for the next 18 days. The scalp, chest, lower lip and penis lesions disappeared, the mouth lesions improved, but the nose lesion persisted. The dose was raised to 60mg/day and triamcinolone acetonide was applied locally to the nose lesion. The patient continued to improve. A low maintenance dose of 5mg/day was sufficient to keep the condition under control.

## Discussion

It is important to differentiate pemphigoid disorders from true pemphigus. Clinically they differ in that bullous pemphigoid rarely occurs in the mouth and benign mucosal pemphigoid occurs mainly in elderly patients and characteristically involves the eyes and scalp as well as the mouth. Histologically the pemphigoids do not exhibit acantholysis but appear to be basement membrane disturbances which cause subepidermal lesions.

The types of true pemphigus are generally recognized:<sup>7</sup> pemphigus vulgaris (with its variant pemphigus vegetans) in which 50 to 75 per cent of cases start with mouth lesions; and pemphigus foliaceus (with its variant pemphigus erythematosus) in which acantholysis occurs in the granular layer instead of the suprabasal cell layer.

In the absence of reliable clinical criteria for differentiation, microscopic examination of oral or skin lesions can frequently be used to reach a diagnosis.



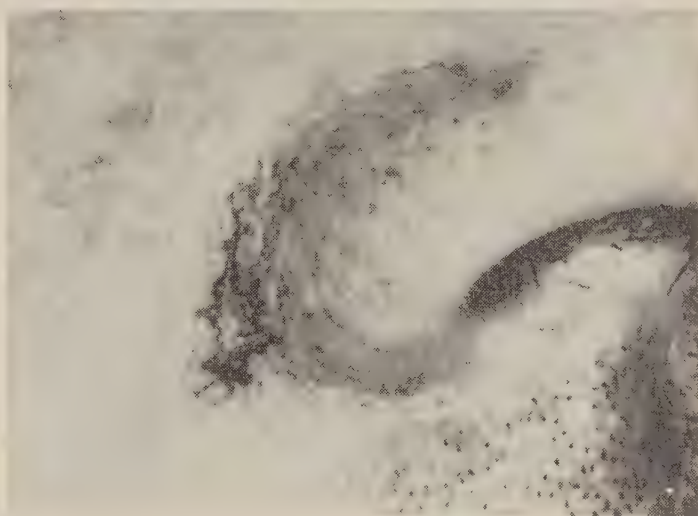
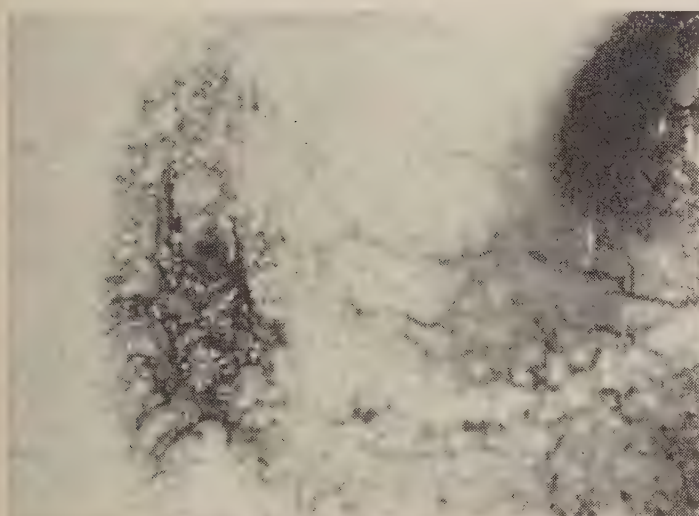
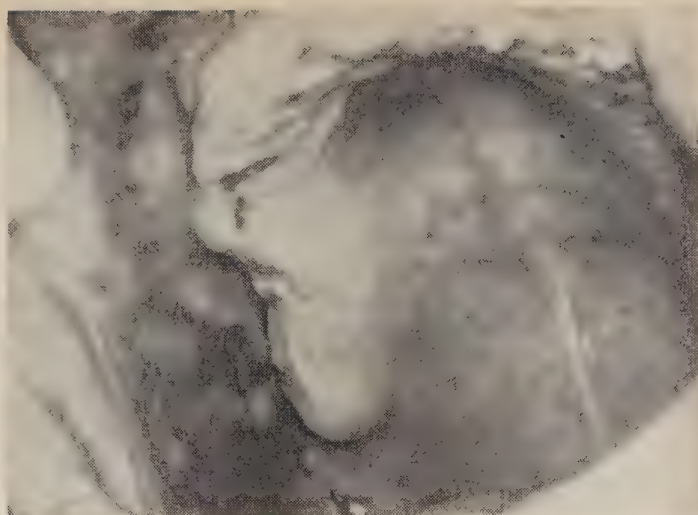
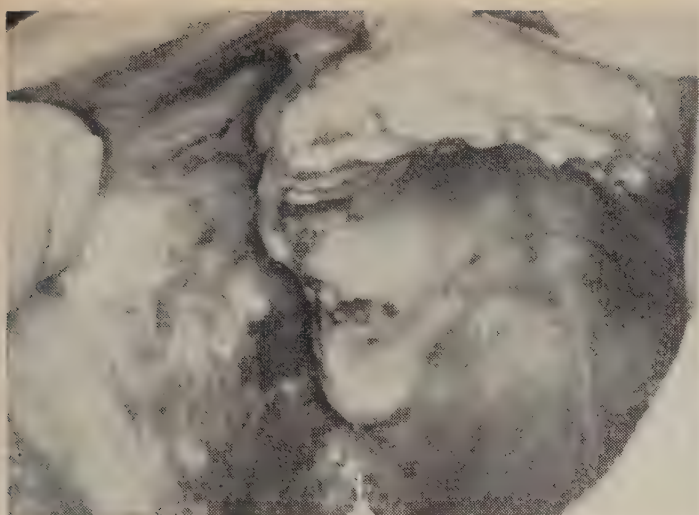


Fig 4 Before (left) and after (right) two weeks of systemic treatment with prednisone.



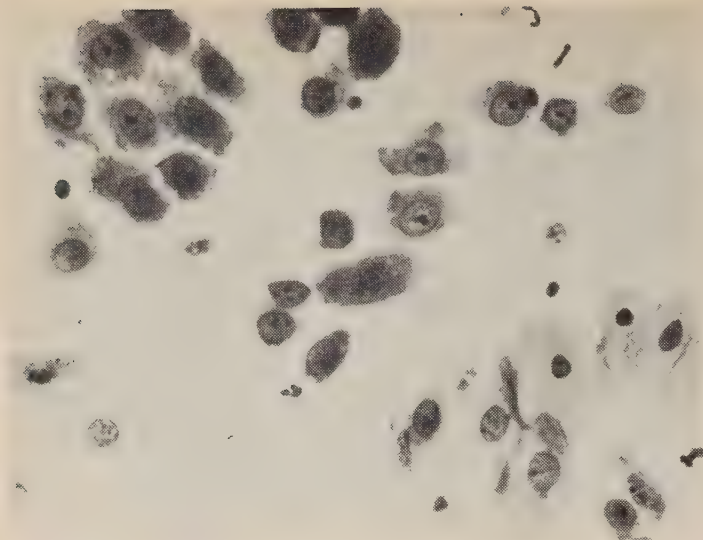


Fig 5 Papanicolaou stained oral cytology smear. Note normal epithelial cells in the lower right corner and clusters of smaller dark staining cells with high nucleocytoplasmic ratios. Note the mitotic figure in the centre and the ragged periphery of many of the abnormal cells. Papanicolaou stain. X400.

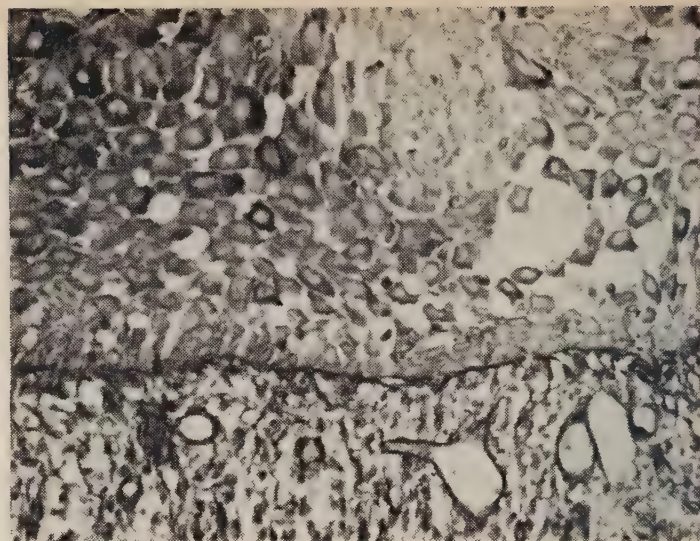


Fig 6 The basement membrane separating the dermis below from the acantholytic epidermis above, appears to be intact. This is characteristic of pemphigus vulgaris but not of pemphigoid. P.A.S. stain. X250.

This is fortunate because the prognosis varies greatly within this group of diseases. The dentist, oral surgeon and oral pathologist may play an important role in this respect.

In the case reported it was noted from the oral cytology smear that there were "very large numbers of suspicious cells of very indefinite morphology." Figure 5 is a photomicrograph of a Papanicolaou stained smear showing normal epithelial cells and smaller dark staining cells with a high nucleocytoplasmic ratio. These cells have large nucleoli, ragged cell borders and frequent mitotic figures. The colour of the cytoplasm, indicating a lack of keratinization, and the numerous cell divisions suggest that these are basal and suprabasal epithelial cells. These deep cells are not normally detected by exfoliative cytology techniques and when present in large numbers in an

oral smear strongly suggest an acantholytic process characteristic of pemphigus vulgaris.

Biopsy is mandatory for the diagnosis of pemphigus vulgaris. Usually skin biopsy is done and the diagnosis depends on finding intra-epithelial bullous formation. In the mouth, bullae are very short lived and the diagnosis must be made on the basis of other criteria such as integrity of the basement membrane (Fig 6), retention of basal epithelial cells, acantholysis and intercellular oedema of the suprabasal epithelial cell layer (Fig 7). Sometimes degeneration produces a distinctive rounded epithelial cell which has been called a Tzanck cell. This, too, has been recognized as a diagnostic feature of the disease.

A positive Nikolsky's sign, which means that part or all of the epidermal layer of skin or mucous membrane separates from the underlying tissue upon pressure, occurs in pemphigus vulgaris because of acantholysis in the suprabasal epithelial cell layer. Asboe-Hansen<sup>8</sup> stresses that acantholysis and Nikolsky's sign also occur in other dermatological diseases. He describes a blister spreading test<sup>9</sup> in which vertical pressure is applied on the blister, causing the fluid to spread into the apparently normal surrounding skin.

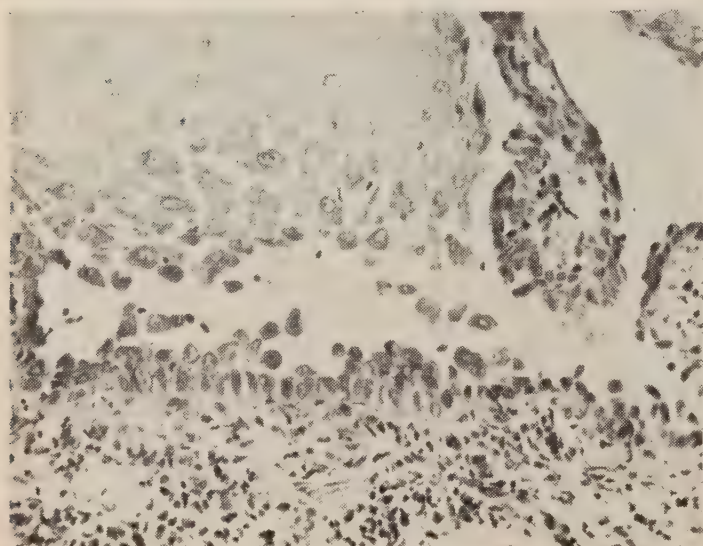


Fig 7 Acantholysis, with intercellular oedema and cleft formation in the suprabasal cell layer of the epithelium in biopsy material from the edge of an ulcer on the maxillary alveolar ridge. Note the retention of the basal cell layer. H.E. X250.



A biopsy taken at the edge of this mechanically spread blister will show that the fluid has migrated into the suprabasal cell layer in pemphigus vulgaris, and into the subcorneal or subepidermal layers in other forms of bullous skin disease. The blister spreading test is therefore more specific than Nikolsky's test.

Beutner, Jordan and Chorzelski<sup>5</sup> state that the presence of pemphigus vulgaris auto-antibody in serum constitutes a diagnostic test for the disease and that the titre of the antibody is proportional to the severity of the process. This is of value not only in diagnosis but in assessing treatment efficacy.

**Treatment rationale**

Modern therapy is based on the hypothesis that the body somehow develops antibodies<sup>5</sup> against an antigen in the cement substance between suprabasal epithelial cells. This means that the cement is functionally altered and causes loss of cohesion between the cells of this layer which subsequently degenerate.

Lever and Hashimoto<sup>10</sup> recommend that large doses of steroid be given to patients with very active disease and that the dose be gradually lowered as improvement occurs. In large doses prednisone, which is the steroid usually used, is immunosuppressant in that it interferes with lymphocyte activity and reduces the amount of antibody formed. It also has a lysosome membrane stabilizing action<sup>11</sup> which may enable the suprabasal epithelial cells to resist destructive factors initiated by the abnormal antigen-antibody reactions.

When the patient can tolerate low maintenance doses of prednisone, amethopterin, an antineoplastic agent which also has an immunosuppressant effect on lymphoid tissue, is administered while the prednisone is gradually reduced and, if possible, finally withdrawn. The reason for this is that, for prolonged treatment, amethopterin is much safer than prednisone, which produces undesirable side effects, and the ultimate prognosis is greatly improved. Jablonska, Chorzelski and Blaszczyk<sup>12</sup> are not in complete agreement with this and state that amethopterin should be used chiefly in patients who cannot tolerate large doses of corticosteroids. The use of estrogen has also been suggested<sup>13</sup> because it reportedly increases the effectiveness of corticosteroids so that much lower doses can be used.

Mucosal lesions which are often highly refractory to systemic treatment may respond to topical application of triamcinolone acetonide.

**Summary**

- 1. Pemphigus appears in two forms, each with a variant, and must be distinguished from two forms of pemphigoid and other skin diseases.
- 2. Oral lesions are prominent and among the first to appear in most cases of pemphigus vulgaris.
- 3. Use of the Nikolsky test, the blister spreading test, the oral cytology smear and oral biopsy by the dentist, the oral surgeon or the oral pathologist can lead to an early diagnosis.
- 4. Systemic treatment should be given by the dermatologist, and combined with local oral treatment by the dentist.

Doctor McMurchy is professor and Doctor Dick is associate professor of oral pathology in the Department of Oral Biology, Faculty of Dentistry, University of Alberta, Edmonton.

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## A topical choline salicylate gel for control of pain and inflammation in oral conditions—a controlled study

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*Equal amounts of topical choline salicylate gel and a placebo were distributed serially in a double-blind format to 71 females and 27 males. The purpose of this was to determine the effectiveness of the gel in controlling oral pain from ill-fitting dentures, after extraction, and in other situations. The subjects recorded their reactions and were examined after two or three days, and again after seven days. The choline salicylate gel achieved a high rate of success compared with the placebo in controlling both pain and inflammation.*

*Des quantités égales d'un colloïde topique de salicylate de choline et un placebo furent distribués en série, en format du double aveugle à 71 femmes et 27 hommes. Le but de cette expérience était de vérifier si le colloïde était véritablement efficace à combattre la douleur buccale provoquée par des prothèses mal adaptées, à la suite d'une extraction et dans d'autres situations. Les sujets firent part de leurs réactions et furent examinés après deux ou trois jours et ensuite après sept jours. Comparé au placebo, le colloïde de salicylate de choline donna de très bons résultats dans la réduction de la douleur et de l'inflammation.*

A topical medication, suitable for self-administration, to relieve pain of varied causes in the mouth is clearly desirable in dentistry. Systemic agents commonly prescribed are subject to abuse in the home. If in addition to relief of pain the medication speeds healing while controlling inflammation and produces minimal side effects, then its desirability is greatly enhanced.

In uncontrolled trials of a topical gel containing choline salicylate, effective management of oral pain and inflammation was obtained in 86 per cent<sup>1</sup> and 93 per cent<sup>2</sup> of patients, while 90 per cent effectiveness was reported when control of pain alone was evaluated.<sup>3</sup> In earlier trials,<sup>4-6</sup> which were concerned with the use of the agent in controlling symptoms of primary dentition, 85 to 96 per cent effectiveness was reported.

In order to obtain a more precise determination of efficacy, a controlled, double-blind study of the medication in the relief of oral pain and inflammation was undertaken in a dental clinic.

In the clinical evaluation of results, relief of pain as reported by the patient was considered in all cases but was not the controlling factor. In those patients whose lesions responded in a dramatic fashion in comparison with expected response without treatment, the result was noted as excellent; where the response was undramatic, but better than might have been expected without treatment, the result was rated good; where the physical results were equivocal in comparison with those expected without treatment, the rating was fair; where there was no apparent improvement or the condition worsened, the result was rated poor.

Relief of pain as reported by the patient to be complete, moderate, slight or nil was recorded separately as a significant factor in evaluating the merits of the medication.

### Materials and methods

Seventy-one females and 27 males from 20 to 82 years old who complained of oral pain took part in the study. Their mean age was 54 years.

The active medication (Teejel gel, supplied by the Purdue Frederick Company (Canada) Ltd) contained, per gram, 87mg of choline salicylate, 0.1mg cetalko-



nium chloride and flavouring agents and vehicles including alcohol, 36 per cent by weight. A placebo (also supplied by the Purdue Frederick Company) was prepared containing the vehicle but without the alcohol content. The active medication and placebo were packed in single-dose ½ oz tubes identical in appearance.

The study was conducted with a rotating staff by the Department of Dentistry in the Outpatient Department of the New Mount Sinai Hospital in Toronto. More than 20 dentists participated. Each patient was re-examined by the prescribing dentist, generally two to three days after the initial visit and again at one week. Patients who failed to return were excluded from the study.

At the initial visit the type of lesion was recorded and its dimensions were taken where appropriate. The patient was given a supply of single-dose tubes of medication or placebo. The tubes were numbered at random as to active medication and placebo and distributed serially in double-blind format.

The patient was instructed to apply the content of the tube directly to the lesion and received a report sheet on which to record the results in regard to pain relief and other reactions.

At the first return visit the number of applications of the material was noted; the treated area was examined and the results recorded. Similar observations were made at the seven-day visit when overall effectiveness was evaluated.

## Results

Random selection of patients in this study resulted in a fairly balanced distribution according to age and sex. Thirty-eight females and 11 males, from 20 to 82 years old, with a mean age of 52.3 years, were given the active medication; 33 females and 16 males, 21 to 82 years old, with a mean age of 55, used the placebo.

Clinical evaluation of results based on the physical appearance of lesions are shown in Table 1. Excellent — dramatic — results were observed in 53 per cent of patients using the active medication and in 8 per cent of patients using the non-medicated placebo. The active drug was evaluated as effective (excellent to

Clinical evaluation of results in all patients

Table 1

|           | Choline salicylate gel | Placebo  |
|-----------|------------------------|----------|
| Excellent | 26 (53%)               | 4 (8%)   |
| Good      | 16 (33%)               | 21 (43%) |
| Fair      | 5 (10%)                | 11 (22%) |
| Poor      | 2 (4%)                 | 13 (27%) |
| Total     | 49                     | 49       |
| P<.01     |                        |          |

good) in 86 per cent of patients and the placebo in 51 per cent. Using the chi-square test for statistical significance, and grouping E + G and F + P, the difference was found to be significant ( $P < .01$ ).

Results in pain relief, as reported by the 74 patients who completed and returned report sheets, are shown in Table 2. Complete relief of pain was reported by 60 per cent of patients using the active medication and by 9 per cent of those using the placebo. Fifteen per cent of patients using the active medication experienced only slight pain relief, or none, compared with 65 per cent of those using the placebo.

Table 3 compares the time between application of the substances and onset and duration of pain relief as reported by the patients. Time of onset was less than five minutes for the active medication in 72 per cent of the respondents and in 29 per cent of those who used the placebo. Duration of relief was three hours or more for 81 per cent with the active drug and 27 per cent with the placebo.

Patients were asked to record any unusual local sensations experienced on application of the agents. Sensations specified on the questionnaire were burning, pain, numbness, tingling and swelling. Twenty-eight of the 39 respondents who used the active medication reported momentarily experiencing one or more of the listed sensations. One reported in addition momentary nausea following application and another patient reported increased salivation. Of 34 patients using the placebo who responded to this inquiry, 16 reported one or more of these sensations. One patient also reported a severe headache following each application of the placebo.

Degree of relief reported by patients with use of choline salicylate gel or placebo

Table 2

| Degree of relief  | Pain source   |                  |                  |            |                  | Total |
|-------------------|---------------|------------------|------------------|------------|------------------|-------|
|                   | Denture sores | Aphthous lesions | Herpetic lesions | Dry socket | Trauma (post-op) |       |
| Active medication |               |                  |                  |            |                  |       |
| Complete          | 18            |                  | 3                |            | 3                | 24    |
| Moderate          | 4             |                  | 2                | 1          | 3                | 10    |
| Slight            | 1             |                  | 1                |            | 1                | 3     |
| None              | 2             |                  |                  |            | 1                | 3     |
| Total             | 25            |                  | 6                | 1          | 8                | 40    |
| Placebo           |               |                  |                  |            |                  |       |
| Complete          | 3             |                  |                  |            |                  | 3     |
| Moderate          | 6             | 2                |                  |            | 1                | 9     |
| Slight            | 7             |                  | 1                |            | 4                | 12    |
| None              | 8             |                  |                  | 1          | 1                | 10    |
| Total             | 24            | 2                | 1                | 1          | 6                | 34    |



| Agent                  | Number reporting | Onset of relief |         |   |    |    |    |    | Number reporting | Duration of relief |       |    |    |   |  |
|------------------------|------------------|-----------------|---------|---|----|----|----|----|------------------|--------------------|-------|----|----|---|--|
|                        |                  | Immedi-<br>ate  | Minutes |   |    |    |    | 1  |                  | 1                  | Hours |    |    |   |  |
|                        |                  |                 | 5       | 5 | 10 | 20 | 20 |    |                  |                    | 2     | 3  | 4  | 4 |  |
| Choline salicylate gel | 36               | 12              | 14      | 4 | 5  |    | 1  | 37 | 3                |                    | 2     | 10 | 15 | 7 |  |
| Placebo                | 24               | 4               | 3       | 5 | 4  | 3  | 5  | 22 | 8                | 3                  | 5     | 2  | 3  | 1 |  |

\*Not all patients reported fully

## Discussion

In a compilation of results from 15 studies involving 1,082 patients with a variety of conditions, though not with pain arising from oral lesions, it was found that an average of  $35.2 \pm 2.2$  per cent obtained satisfactory relief from administration of placebos.<sup>7</sup> The general statement has been made that with mild analgesics 30 per cent of the benefit derived may be attributed to the placebo effect.<sup>8</sup> The results of the current study are obviously consistent with these observations.

Assuming the placebo-effectiveness ratio to apply to the group taking the active drug, some 14 patients can be said to have reported complete or moderate relief because of this effect. The actual result of 34 patients receiving such relief was some 240 per cent greater. In the largest group of patients studied — those with denture sores — effectiveness was 88 per cent for the active group and 37 per cent for the placebo; drug effect was therefore again some 230 per cent greater than placebo effect. The spread suggests a definite analgesic effectiveness for the topical salicylate agent tested in this double-blind study.

With respect to clinical evaluation of the medication's effect on the lesion, the general placebo effect, of course, does not apply. Comparing the actual results, those obtained with the active drug were some 69 per cent greater than with the placebo, suggesting effective local anti-inflammatory activity by the choline salicylate agent.

While the sensations of burning, tingling, numbness or swelling might have been expected in patients using the active agent which contains alcohol, the high percentage of reports of such sensations in the placebo patients can probably be attributed to their suggestibility. These sensations were momentary and there was no suggestion that they caused discomfort or hesitation in administration.

## Summary

1. In a double-blind study, the efficacy of a choline salicylate gel in topical use for the control of pain and inflammation in the mouth was compared with that of a placebo.

2. Clinical evaluation of lesion healing was made in 98 patients, evenly divided as to treatment; 74 patients reported on the degree of pain relief experienced.

3. In clinical evaluation, based on observation of lesions as well as reported pain relief, efficacy of the

test agent was 86 per cent as against 51 per cent for the placebo.

4. Analgesic efficacy, based on patient evaluation, was 85 per cent for the active drug and 35 per cent for the placebo; for denture sores, the active drug relieved pain in 88 per cent and the placebo in 37 per cent of the patients.

5. Pain relief was obtained within five minutes in 83 per cent of patients reporting relief with the active drug and in 50 per cent of those reporting relief with the placebo; duration of relief per application was three hours or more in 86 per cent of respondents using the active drug and 27 per cent of respondents using the placebo.

6. The differences between the active drug and the placebo observed in this study were statistically significant and suggest superior analgesic and anti-inflammatory efficacy for the choline salicylate gel when applied topically to oral lesions.

The authors thank members of the volunteer staff of the Department of Dentistry, New Mount Sinai Hospital, who carried out the patient contact portions of the investigation. They also acknowledge the assistance of Mr. M. Gordon in the compilation and assessment of statistical data in this study.

Doctor Jolley is dentist-in-chief; Doctor Torneck is a member of the Endodontic Section; and Doctor Siegel is a member of the Diagnostic Centre, Department of Dentistry, New Mount Sinai Hospital. Their address is: 550 University Ave, Toronto 2.

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# An analysis of 105 dental cysts

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C. Esty  
Winnipeg

*The following article presents an analysis of 105 dental cysts with regard to the size and site, and the sex and age of the patients from whom the cysts were removed. The authors wished to discover the frequency of the presence of cholesterol in the cysts and whether or not this has any connection with the sex or age of the patient. They also tried to establish a correlation between the size of the lumen and the size and site of the cyst. They were unable to establish any satisfactory correlation between the various factors.*

*L'article suivant décrit l'analyse de 105 kystes dentaires en relation avec leur dimension et l'endroit où ils se développent, ainsi que le sexe et l'âge des patients qui se sont fait enlever ce kyste. Les auteurs de l'article voulaient découvrir la fréquence de présence de cholestérol dans ces kystes, et voir si cette présence avait un certain rapport avec le sexe et l'âge du patient. Ils essayèrent aussi d'établir une relation entre la dimension du lumen et la dimension et la position du kyste. Ils ont été incapables d'obtenir des résultats satisfaisants en ce qui concerne les différents rapports que pourraient entretenir ces multiples facteurs.*

Dental cysts have been studied for many reasons. Shear<sup>1</sup> carried out an analysis of dental cysts and demonstrated their distribution by age and site. Ahlström, Johansen and Lantz<sup>2</sup> reviewed a number of cysts to see if there was any relationship between healing following surgical removal of cysts and the sex and age of the patients. Mortensen, Winther and Birn<sup>3</sup> tried to assess the degree of correlation between clinical and radiographic diagnosis and the histological findings.

We have noted during the routine diagnosis of dental cysts in the Department of Oral Pathology of the University of Manitoba that there were wide variations in the size of the cyst lumen and the thickness of the epithelial connective tissue wall. It has been suggested that the aspiration of cholesterol containing fluid from the lumen of dental cysts constitutes a reasonably reliable method of confirming the clinical and radiological examination.<sup>4</sup> However, one can only obtain such information from aspiration when cholesterol is present. Brown<sup>5</sup> found cholesterol present in 43.5 per cent of cases while Shear<sup>6</sup> only detected its presence in 28.5 per cent. Diagnostic confirmation also depends on whether or not one can find the lumen from which to aspirate fluid for examination.

This analysis was undertaken to discover any correlation between the size of the lumen, the size of the cyst, the presence of cholesterol, the sex and age of the patient and the clinical site of the cyst.

## Materials and methods

One hundred and five cysts were analysed. We examined only those which were sent to the laboratory intact so that they could be cut through their greatest diameter. The sex and age of the subject, and the site and the presence of cholesterol were noted. Each cyst was examined on a projecting microscope to measure

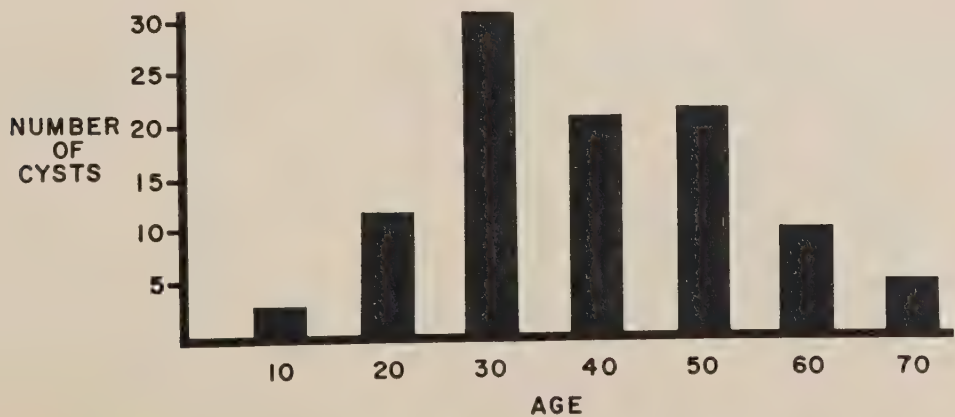


Fig 1 Distribution of dental cysts according to age.



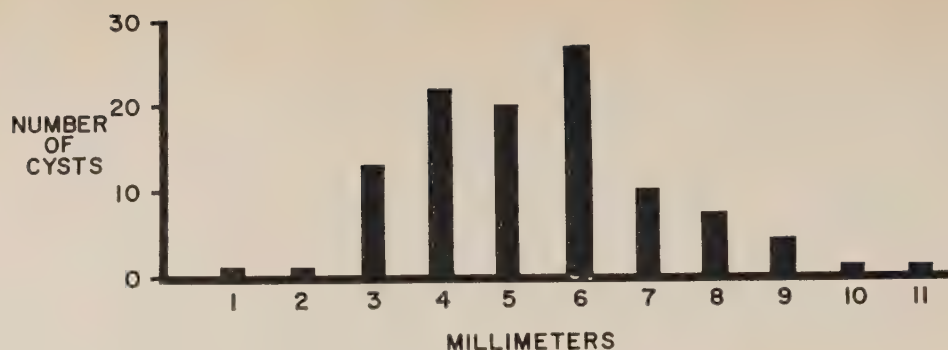


Fig 2 Distribution of dental cysts according to size.

the maximum and minimum diameters of the total lesion and also the lumen. A mean lesion diameter (MLD) and a mean cavity diameter (MCD) were thus obtained. All the data were then subjected to an analysis of variance.

## Results

**Sex and age distribution**—The age distribution of patients with cysts can be seen in Table 1 and Figure 1. It is interesting to note that only a few were seen below the age of 10 years. The records on these patients and

the microscopic findings leave no doubt that these were not dentigerous cysts. Thirty per cent of the cysts occur in the age group 21-30 years, which appears a little early compared with previous studies. Nevertheless, 70 per cent of the cysts occur between the ages of 21 and 50 years, as expected. The distribution was very similar for males and females, the total number of cysts found in males being 55 (52.3 per cent) and in females 50 (47.7 per cent).

The statistical analysis did not show any significant relationship between sex and age distribution of these cysts nor any relationship with either the MLD or MCD.

**Distribution of cysts by size and site**—The measurements here are the mean lesion diameter (MLD). The data show that 73 per cent of the cysts in this series were between 4 and 7mm in size at the time of histological examination (Table 2, Fig 2). No attempt has been made to compare these with the radiological findings, but there is a certain amount of tissue shrinkage due to fixation. Only 14 per cent were 3mm or less in size; another 13 per cent were 8mm or more in diameter. Statistical analysis showed no correlation between sex, age, size or site.

The distribution of the cysts by site is shown in Table 3 and Figure 3. The greatest number occurs in the maxillary anterior region. The remaining cysts are distributed in roughly the same proportion for all other

Distribution of cysts according to age

Table 1

| Years | Cysts |     |
|-------|-------|-----|
|       | N     | %   |
| 10    | 3     | 3   |
| 11-20 | 12    | 11  |
| 21-30 | 31    | 30  |
| 31-40 | 22    | 21  |
| 41-50 | 23    | 22  |
| 51-60 | 10    | 9   |
| 61-70 | 4     | 4   |
| Total | 105   | 100 |

Distribution of cysts according to size

Table 2

| Size  | N   |
|-------|-----|
| 1mm   | 1   |
| 2mm   | 1   |
| 3mm   | 13  |
| 4mm   | 21  |
| 5mm   | 20  |
| 6mm   | 26  |
| 7mm   | 10  |
| 8mm   | 7   |
| 9mm   | 4   |
| 10mm  | 1   |
| 11mm  | 1   |
| Total | 105 |

Distribution of cysts by site

Table 3

| Site     |          | N  |
|----------|----------|----|
| Maxilla  | Anterior | 38 |
|          | Premolar | 11 |
|          | Molar    | 12 |
|          | Total    | 61 |
| Mandible | Anterior | 13 |
|          | Premolar | 14 |
|          | Molar    | 17 |
|          | Total    | 44 |



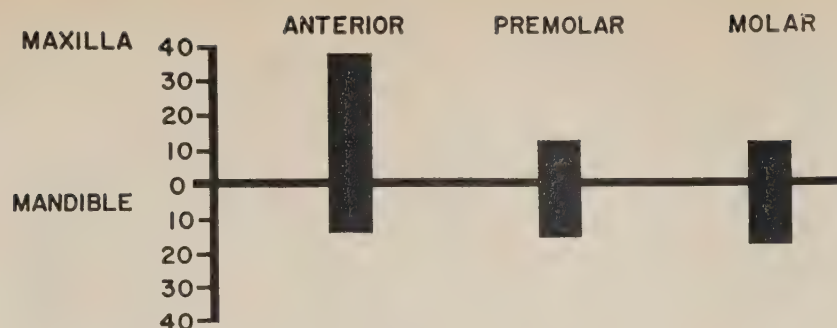


Fig 3 Distribution of dental cysts according to site.

sites in the mouth. It also shows a ratio of maxillary to mandibular cysts of 3:2.

**Cholesterol**—It is interesting to note that cholesterol was found in cysts from all age groups studied except the group over 61 years old (Table 4, Fig 4). The number of cysts containing cholesterol was therefore greatest between 21 and 60 years.

Within each age group the high percentages were found in the age groups 41-50 years and 51-60 years (Table 4, Fig 5). Among all the patients cholesterol was found in 30 per cent of the cases. Statistical analysis showed no correlation between age, sex, site or size.

Cholesterol in cysts

Table 4

| Age   | Cysts |                  |    |
|-------|-------|------------------|----|
|       | N     | With cholesterol | %  |
| 10    | 3     | 1                | 30 |
| 11-20 | 12    | 1                | 8  |
| 21-30 | 31    | 9                | 30 |
| 31-40 | 22    | 4                | 17 |
| 41-50 | 23    | 11               | 48 |
| 51-60 | 10    | 6                | 60 |
| 61-70 | 4     | 0                | 0  |
| Total | 105   | 32               |    |

## Discussion

The fact that the hypotheses on which this analysis was based were not proven is significant. The lack of correlation should make clinicians wary of making assumptions regarding the chances of finding cholesterol in cystic cavities, of large cysts being more likely

to contain cholesterol, or the possibility that cholesterol may be found in older patients.

The age distribution of patients presenting with cysts is very similar to the analysis compiled by Shear,<sup>1</sup> but the difference between the sexes was not nearly as marked in our group. Sergl and Ziegelmayr<sup>7</sup> demonstrated a close relationship between the inci-

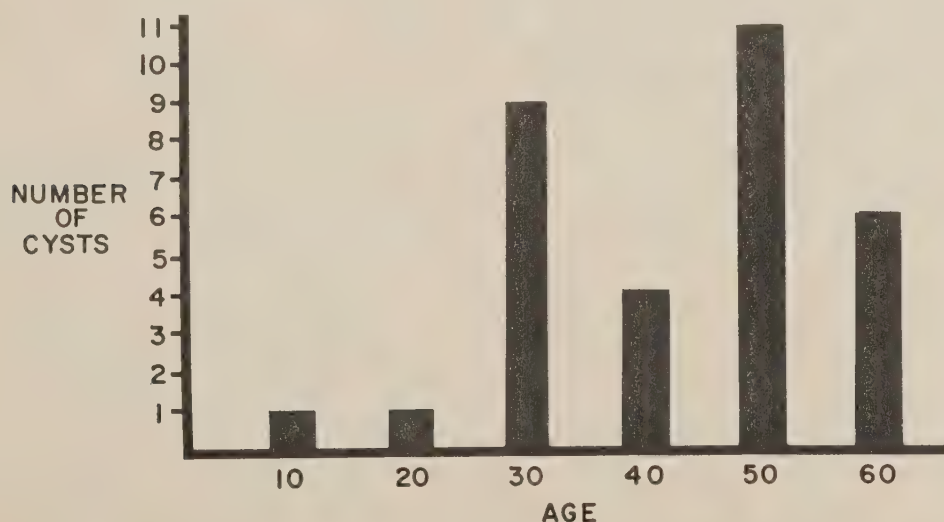


Fig 4 Relationship between patients' age and dental cysts containing cholesterol.



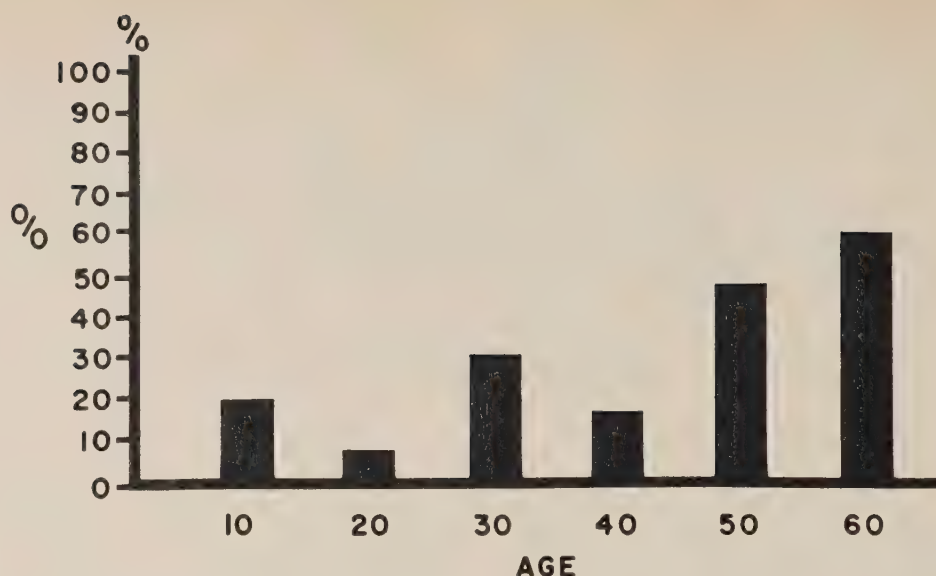


Fig 5 Relationship between patients' age and percentage of cysts containing cholesterol.

dence of caries and the occurrence of periapical radiolucencies. The mandibular molar region showed the highest incidence of such lesions. Yet in this survey and that of Mortensen, Winther and Birn<sup>3</sup> the greatest incidence of cysts was in the maxillary anterior region. This suggests that there is no correlation between caries incidence and the possibility of cyst formation. The maxillo-mandibular ratio of 3:2 occurring in this study is similar to that found by Mortensen, Winther and Birn<sup>3</sup> and Shear.<sup>1</sup>

Cholesterol was found either in the cyst cavity or the cyst wall in 30 per cent of cases. Shear<sup>6</sup> found a very similar ratio. The series that Brown<sup>5</sup> examined was much larger than that of Shear<sup>6</sup> or the one we studied and it is interesting to note that he found cholesterol present in 43 per cent of cases. Neither of these investigators gives an indication of the age range of patients in whom they found cholesterol. We encountered it at all ages from 10 to 60 years of age, the greatest percentage of cysts containing cholesterol occurring in the age groups above 41. There is, however, no statistical evidence of a relationship between age and the presence of cholesterol, nor is there any correlation between cyst size and cholesterol.

Most cysts seen in the group examined were between 4 to 7mm in size. Mortensen, Winther and Birn<sup>3</sup> found that the majority of cysts in their series were 5 to 9mm in size, but this measurement was made radiologically and not from intact specimens.

## Conclusions

No statistical correlations were found between the size of cysts, the patient's age or sex, the site from which the specimen was taken, or the presence of cholesterol.

Seventy per cent of the cysts analysed in this series were from patients between the ages of 21-50 years. No sex differences were seen. The maxillo-mandibular ratio of cysts was 3:2. Seventy-three per cent of the cysts examined were between 3-7mm in size. Cholesterol was found in 30 per cent of the cysts examined, and in cysts from all age groups except patients over 61 years of age.

Doctor Trott is professor of oral biology at the Faculty of Dentistry, and Mr. Esty was a summer research student in the Department of Oral Pathology, University of Manitoba, 780 Bannatyne Ave, Winnipeg 3.

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### The fourth canal in maxillary first molars

Lionel Metrick, DDS  
Ottawa

About 51 per cent<sup>1</sup> of maxillary first molars have what Grossman<sup>2</sup> calls a fourth canal. Brescia<sup>3</sup> refers to it as a second mesiobuccal canal. The orifice to this fourth canal is found about 1-2mm palatal to that of the mesiobuccal canal. These orifices lead to mesial canals<sup>1</sup> that may have two distinct apical foramina or may merge near their apices to end in one foramen.

Failure to recognize the presence of the fourth canal may result in unyielding discomfort either during or after endodontic treatment. Four cases of maxillary first molars with fourth canals are presented here. In the first case discomfort was present during treatment; in the second discomfort was experienced about four years after completion of treatment; and in the other two cases the fourth canal was found on examination.

**Case 1**—After prolonged endodontic treatment the patient was referred to me suffering acute pain. The three canals examined had dentinal seals near the apices and a fistula was present on the buccal mucosa adjacent to the apex of the distobuccal canal. To relieve the acute pain, the buccal canals were filled and the roots were resected. A postoperative radiograph showed a mesial root still intact despite the resection. This confirmed the presence of a fourth canal in the second mesial root. Figure 1 shows the completed case.

**Case 2**—Four years after completion of treatment the patient complained of discomfort in the region of the apex of the mesiobuccal root. On re-examination, the orifice to the fourth canal was found. It was treated and filled as seen in Figure 2.

**Cases 3 and 4**—The four canals were found on examination, then treated and filled as seen in Figures 3 and 4.



Fig 1



Fig 2

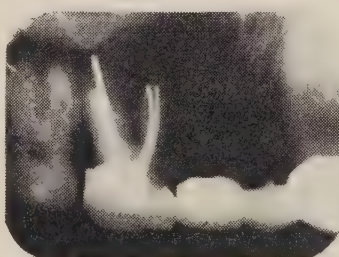


Fig 3

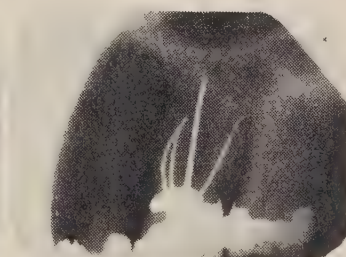


Fig 4

#### Conclusion

Failure to recognize the presence of the fourth canal may cause protracted discomfort either during endodontic treatment or after it is completed.

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## Book Reviews

### Color Atlas of Oral Pathology

R. C. Colby, D. A. Kerr and H. B. G. Robinson. Ed 3. Philadelphia and Toronto, J. B. Lippincott Company, 1971. 207 p. Illus. \$19.75

The original edition of this *Color Atlas of Oral Pathology* was published in 1956 under the auspices of the US Naval Dental School of the National Naval Medical Centre, Bethesda, Maryland. The intent was to provide the general practitioner with a ready reference to assist in the diagnosis of lesions of the oral cavity. The bulk of a textbook was avoided by confining the descriptive text to the essential features and placing these adjacent to the appropriate illustrations.

The content is presented in five sections. Beginning with a review of dental histology and embryology that is so necessary to the understanding of many dental conditions, it goes on to a grouping of developmental anomalies of hard and soft tissues. The third part deals with diseases of the teeth and their supporting structures. The fourth section covers diseases of the oral mucosa and jaws and is followed by the fifth section that describes benign and malignant neoplasms. In all, the book covers approximately 150 disease entities illustrated by 485 colour pictures. These are in the form of clinical, histological and x-ray photographs. The quality of all the pictures is of a very high order and they should be of great assistance in the identification of an unknown disease.

The second edition came out in 1961 and this new third edition has retained the same format though the text is set in a different font. Six new conditions replace six others that have been dropped and there are several substitutions of better examples of existing illustrated lesions. The existing text has been rephrased to some extent and the bibliography has been greatly expanded by the addition of five more pages to a

total of 30 including the pertinent 1970 literature.

This book admirably fulfils its stated purpose, that of being a handy reference for the clinician. The supporting bibliography gives ready access to journals and texts for more detailed information.

H. A. Hunter

### Zahnersatz für Zahnlose

H. Uhlig. Berlin, Buch- und Zeitschriften-Verlag "Die Quintessenz," 1970. 182 p. Illus. DM 98-

This book on complete denture prosthetics has the simple title *Tooth Replacement for the Edentulous*. The foreword opens with the refreshingly heretic theory that denture-supporting tissues are much more important to the construction of prostheses than the temporomandibular joint. Consequently, the joint is rarely mentioned in the remainder of the book.

The author contends that loss of retention, often due to damage to the denture bearing tissues by ill-fitting dentures, is the most frequent hurdle to overcome in complete prosthodontics. He states that, while the temporomandibular joint is very adjustable to extreme conditions, the ridges are not, and he wonders why most textbooks and teachers neglect the unbalancing bolus of food as a critical factor and overemphasize "empty mastication." He gives the concept of denture foundation definite preference over the concept of articulation.

In chapter 2 Uhlig delves into the nature of denture retaining forces including hydraulics, vacuum and tissue elasticity. He also comments about the pro's and con's of past and present retentional aids such as vacuum cups, ridges, postdams, relief areas, springs, weights, valves and adhesives and their more or less destructive influence on the oral mucosa.

The clinical part of the book, chapter 3, begins with an absolutely excellent system of charting an edentulous mouth,

but then peters out in a most disappointing fashion. There are only sketchy details about other procedures which are far better described in conventional prosthodontic textbooks. The final page concludes with the patient chewing contentedly on carborundum paste.

Even if one could accept all of the basic statements in this book, one cannot deal so casually with jaw relations and articulation.

G. E. Mensch

### Elements of Dental Materials for Dental Hygienists and Assistants

R. A. Phillips. Ed 2. Toronto, W. B. Saunders Company, 1971, 283 p. Illus. \$9.45

The first edition of this book appeared in 1965 and met with an immediate favourable response from educators in dental auxiliary programs. It was one of the first texts specifically designed for dental hygienists and assistants and has been one of the most successful.

The philosophical approach to the selection and presentation of material in the second edition remains identical with the first: "It is designed to educate the dental hygienist and the dental assistant in the science of dental materials rather than to provide a manual for carrying . . . dental procedures." At the same time materials, their characteristics and methods of manipulation are presented in relation to the relevant procedures, providing maximum understanding of the practical application of the subject matter.

Changes have been made to reflect new developments in the field of dental materials and also in response to discussions with teachers and students who have used the first edition. Significant improvements have been made by elaborating and updating information on synthetic resins, dental cements, amalgam alloys and dentifrices. Of special interest is the inclusion of a new chapter, "Dental Materials and the Oral Environment," which explains the relationship between the complex biological factors of the oral cavity and the materials employed in dentistry, and will provide an excellent introduction and orientation for student hygienists and assistants.

As expected, the second edition of *Elements of Dental Materials for Dental Hygienists and Assistants* maintains the high standard of excellence found in its predecessor and includes updated and expanded material where appropriate. It will undoubtedly be widely used by dental auxiliary educators.

Margery G. E. Forgay



## A swing to private practice in Britain

"The Decay of the National Health Service" is the intriguing title of a recent article in Britain's *Sunday Times*<sup>1</sup> that is of more than passing interest for Canadian dentists. It describes the predicament of David Walker who had just moved to the Hertfordshire city of St. Albans, and needed new dentures. Thirteen of the 15 local dentists, he found, would no longer treat patients under the government scheme. Only two were prepared to give him an appointment—in the distant future.

What has happened in St. Albans is apparently no isolated occurrence but a manifestation of a national swing away from the NHS which has become increasingly strong in recent months and could put the whole system in peril.

The underlying reasons for the dentists' disaffection are that the government is making them fill out more and more forms when they claim payment for treatment rendered to patients, that the piece-work structure of NHS payments encourages speed rather than quality of care, and that many of the more sophisticated new dental techniques are not sanctioned by the NHS.

A dentist who wants to do anything beyond the most basic treatment must first get permission from the government, a tedious and often frustrating exercise. When approval is finally given, it is generally at a ludicrously low fee. The result is that dentists soon learn it is easier to adhere to basic treatment—or switch to private practice.

Aiding the swing away from the NHS is a new system of contributions from dental patients which the government introduced last April. Instead of a flat payment of \$3.80 toward their course of treatment, patients—except children, pensioners and pregnant women—must now pay half the cost of treatment, up to a limit of \$25.30. Though this makes no financial difference to the dentists, it has had an unexpected side effect. For the first time since the NHS began, dentists now have a reason to discuss the cost of treatment with their patients, before starting the work. They can thus

compare the obvious limitations of NHS treatment and the greater flexibility of private treatment without embarrassment and without seeming avaricious.

Particularly over the past few months this has produced a remarkable change of attitude in the profession. Many members are attending seminars in how to persuade patients to abandon the government service in favour of private practice. One organization promoting this new approach flew 60 British dentists and their wives to sunny Majorca last month. While their wives were relaxing the dentists learned how to persuade their NHS patients to become private patients, not only for occasional "special" items but for their regular maintenance care.

Helping to finance private treatment are a flock of insurance schemes and credit companies that reportedly do a steady business. For treatment costing \$200, the patient must pay, in the case of one company, \$228 over several months. As soon as the company approves the loan the dentist is paid \$200 directly.

Not all dentists are happy with these new trends. But idealistic concern about the NHS has been dampened by what many dentists have come to regard as shoddy treatment from the government, too much bureaucracy and technical backwardness. Answering the dentists' criticism, NHS officials say that the \$2 billion annual budget for the dental service is limited and therefore requires strict control over the type of work done. As for the forms the dentists complain about, they are unavoidable and a necessary price for this type of service.

In the face of such an uncompromising attitude, many dentists have begun to wonder whether the government is looking for an excuse to abandon NHS dental treatment, or is quietly leaving it to die a natural death.

<sup>1</sup> Dawe, Tony and Anderson, Ken. The decay of the NHS. The Sunday Times. November 7, 1971.



# Une loi québécoise sur la denturologie

La fin d'une année représente toujours un moment de quiétude et de repos, le temps de considérer ses réalisations avec satisfaction et de se réjouir de ses succès. Ce n'est malheureusement pas le cas au Québec où le ministre des Affaires sociales, M. Claude Castonguay, a terminé l'année sur une note assez troublante en proposant le Bill 266 mieux connu sous le nom de la "Loi sur la denturologie".

Le but de ce document est tout simplement d'annuler la législation actuelle sur les techniciens dentaires et de la remplacer par une structure toute nouvelle qui crée un corps constitué, autonome et indépendant de mécaniciens dentaires. Non seulement l'architecte de ce projet a-t-il joint l'innocence candide à l'ingéniosité verbale mais il a aussi fabriqué un mot tout neuf, la denturologie, pour désigner cet enfant sorti tout droit de son imagination.

Si l'on se voulait cynique, un simple haussement d'épaules serait nécessaire et l'affaire serait classée. Après tout, draper les mécaniciens dentaires par quelque nom que ce soit d'un vêtement légal, ne représente rien de neuf. Cela s'est déjà produit en Alberta, en Colombie-Britannique et au Manitoba. C'est toujours le même vieux problème qui surgit de nouveau.

Mais si nous avons besoin d'un petit rappel de ce qu'est ce même vieux problème, le projet de loi québécois nous le donne, mais avec en plus une touche de vengeance. Comme l'indique notre rapport ailleurs dans cet exemplaire du Journal (page 96) le Bill 266 réserverait uniquement aux mécaniciens dentaires le droit de vendre, de fournir, de poser ou de remplacer des prothèses dentaires amovibles. Si l'on prend ce texte mot à mot, ceci excluerait effectivement le dentiste de tout le domaine des prothèses partielles et complètes. Faisant pendant à cette proposition déjà surprenante s'en trouve une autre qui interdit expressément aux mécaniciens dentaires de poser tout diagnostic ou tout autre acte thérapeutique!

Si cette législation incroyable devait être acceptée sous sa forme actuelle, il y aurait au Québec deux groupes de praticiens dentaires bien distincts mais

n'ayant absolument aucun rapport entre eux: les dentistes qui peuvent poser un diagnostic mais ne peuvent pas poser de prothèses, et les mécaniciens qui peuvent accorder leurs services directement au patient ou par l'intermédiaire d'un dentiste mais qui ne peuvent établir le diagnostic.

Non seulement cette division arbitraire entre le diagnostic et la thérapie semble-t-elle illogique, mais elle est nettement dangereuse. Personne n'a encore oublié le cas tragique d'un patient de Vancouver qui souffrait d'une plaie au palais et qui se fit poser de nouvelles prothèses par un mécanicien. La plaie en question se révéla être un cancer de la bouche.<sup>1</sup>

Il est probable qu'un profond désir d'améliorer la disponibilité des services de prothèses au Québec ait conduit M. Castonguay à établir cette nouvelle loi. Mais sa façon de voir les choses défie la raison. De plus il semble soit oublier soit dédaigner les résultats d'une enquête indépendante effectuée sous l'égide du Comité Wells. Ce groupe d'étude a déjà soumis l'octroi de licences en Colombie-Britannique et en Alberta à des personnes aux qualifications douteuses à une critique sanglante.<sup>2</sup> Et pourtant M. Castonguay et ses conseillers semblent bien déterminés à suivre ce même chemin.

Nul ne songe ici à critiquer des mesures qui pourraient améliorer la distribution des services de santé à la population, et qui en abaisseraient aussi leur coût. Mais il faut aussi que ces mesures rejoignent les normes de base de qualité et de sécurité pour le public. Mais le Bill 266 ne peut prétendre s'appuyer sur aucun de ces deux critères.

Dans le cas qui nous occupe comme dans bien d'autres d'ailleurs, les prophètes qui scrutent l'art dentaire et son avenir le font à travers un écran de fumée. Ils peuvent pourtant, s'ils le veulent, prendre conseil auprès du marin qui sait toujours que la pire façon de naviguer sur une mer houleuse consiste à changer la course du navire sitôt qu'intervient le moindre changement de temps. Il faut régler les manoeuvres pour obtenir une vitesse régulière, sans à-coups.

(Suite à la page 88)



4-6 year age level. Consequently, this problem should be brought to the attention of the dentist and paedodontist who see these patients routinely at an earlier age.

On the other hand, in skeletal and antero-posterior discrepancy, as in Class II malocclusion with open bite, it would be difficult to correct the protrusion lisp and tongue thrust by speech therapy until the incisor relationship is improved.

Miss Lewis' article will give dentists a better appreciation of the complexity of the problem. It is obvious that the speech therapist requires a thorough analysis of the complex mechanism employed in speech. More important, she must have the necessary ability and enthusiasm to motivate the patient toward the ultimate in cooperation.

Regardless of whether we agree or disagree with some of her concepts, we need more effective communication between our respective disciplines. This can only result in better patient care. For this reason alone, Miss Lewis has made a welcome contribution to our Journal.

L. C. Melosky, DDS  
225 Vaughan St  
Winnipeg 1, Man

## Tongue thrust and protrusion lisp

The cause of tongue thrust is still unknown, although there are several controversial theories such as early feeding habits, upper respiratory problems and associated habits like thumbsucking and tongue sucking habits in infancy. Recently it has been postulated that tongue thrust associated with an anterior open bite represents a partial incomplete transition from the infantile toward the adult swallow pattern. Many children make this transition in the second or third year while others maturing more slowly complete the transition later. If this transition is not made the tongue would remain in the infantile position and press against the anterior teeth with every swallow causing deleterious effects.

The incidence of tongue thrust is also controversial. Literature reviews consistently indicate a steady decline as children grow older. Another interesting finding is that subjects with malocclusion who have a tongue thrust are more likely to have an associated lisp than do subjects with the same type of malocclusion who do not have a tongue thrust swallow. Furthermore, the incidence of lisp is nearly twice as high in tongue thrusters as in non-thrusters.

One would have to agree with Miss Lewis ("Tongue Thrust and the Protrusion Lisp," October Journal) that a speech therapist who undertakes to cure a lisp in a patient with tongue thrust will find that the problem is far more than a speech defect. Although she may overcome the lisp, the basic problem of tongue behaviour may remain unchanged; this may be a poor diagnostic sign when an attempt is made to treat an open bite.

Miss Lewis outlines two basic approaches to therapy. In one, the orthodontist refers the patient for speech therapy before initiating orthodontic treatment; in the other, both treatments proceed simultaneously. In the case of a Class I malocclusion with open bite, I like to refer the patient for speech therapy prior to orthodontic treatment at an early age. But unfortunately orthodontists see very few patients at the

cation of an etchant, such as a 50 per cent phosphoric acid solution. The resin flows readily into the cleansed area, providing intimate mechanical adaptation to the tooth surface.

However, if the fissure is not readily accessible and if it is carious, then it is possible that the enamel surface cannot be cleaned adequately. The resin would not then mechanically bond to the enamel. The subsequent leakage that might occur could actually enhance the progression of caries. It may very well be that the data being accumulated from the studies now in progress will prove that the present materials do provide a sufficiently good seal to arrest caries, even if the fissure or pit is not actually non-carious at the time of the treatment.

There are other considerations. There is some evidence that the continued exposure of enamel to the oral environment undergoes a maturation, or "weathering," and that the mature enamel is thereby rendered less susceptible to decalcification. If this hypothesis is true, then a sealant applied soon after tooth eruption and continued on an annual basis could conceivably prevent the maturation process. The enamel would then be vulnerable to caries when and if the sealant application is discontinued. Further research will resolve this theoretical controversy.

Until documentation regarding these and other matters is obtained, the dentist should use discretion in diagnosis and restrict the use of sealants to the conditions previously described. Their use at the moment would appear to be best suited for community dentistry projects and for the practitioner who emphasizes preventive dentistry, and whose office is organized accordingly.

R. W. Phillips  
Assistant Dean for Research  
Indiana University School of Dentistry  
Indianapolis, Ind

## Pit and fissure sealants

*Because of widespread interest in this new caries control measure, the Journal invited noted dental materials scientist R. W. Phillips to comment on the article by A. J. Gwinnett in our December issue. Herewith Doctor Phillips' remarks:*

The concept behind the pit and fissure sealant therapy is unquestionably virtuous. Doctor Gwinnett has ably and accurately reviewed the associated theories and studies identified with this technique. The results that have been published to date are indeed impressive.

However, the reader should be cautioned that the commercial products available would still have to be considered somewhat in a transitional stage. Continuing clinical evaluations will resolve a number of questions which are as yet unanswered. For example, the studies reported involve careful selection of the cases to be treated, meticulous use and experience with the resin system employed and a religious regime of patient recall. If less attention is paid to such details the results are totally unpredictable.

Also, in most of the investigations, the sealant has been used only on surfaces which appear to be caries free. Apparently if the fissure is non-carious and reasonably accessible, it can be cleaned rather effectively by the appli-

Corrections to the paper by Doctor Gwinnett, "Sealing of Pits and Fissures" (J Canad Dent Ass 37:458, Dec 1971) are needed. He states that Roydhouse used methyl methacrylate to seal fissures whereas the article referred to (J Dent Child 35:253, 1968) states that the material was a reaction product of bisphenol A, glycidyl methacrylate and methyl methacrylate. This is, of course, the very material about which Doctor Gwinnett is now writing.

Two points should be made. The sealant I used in 1962 was developed from material designed by Ray Bowen, formerly of the National Bureau of Standards in Washington. We must not forget that composites and sealants, all of which are based upon this BPA-GMA



material, are due to his early work. Buonocore and Roydhouse in turn developed the chemical system into clinically viable systems now being marketed. In the rivalry of the marketplace, Doctor Bowen seems to have been forgotten.

Doctor Gwinnett suggests that my clinical results were not very encouraging. The results, in the words of the editor of the *Journal of Dentistry for Children*, carried "an implication for future success — in a more effective program of caries control and prevention." I am sure Doctor Gwinnett hopes so too as the chemical systems he describes are similar.

This early form of the resin was applied to children living in a fluoridated area and observed for three years. One will get a 100 per cent decrease in caries if one examines the teeth again soon enough; the sealant prevents the probe from catching in the fissure, independent of whether caries was, or is present. After three years it appeared that one coating reduced the caries rate by about 30 per cent. However, there are complex problems associated with the diagnosis, the testing procedures and the statistics involved. Much depends on the form of analysis applied to the results. Studies have been done on adequate samples but with inadequate statistical logic. The complex phenomena that are involved have been also described by Takeuchi et al (Bull Tokyo Univ 12:295, Nov 1971).

We can expect a 30 per cent or more reduction in fissure caries if the materials (all of which are chemically very similar) are correctly applied. How much more than 30 per cent will depend on the nature of the sample and the statistical logic employed, and not upon the claims of rival manufacturers. Fissure sealants offer dentistry another demonstrable (to the patient) form of prevention which can be applied in any dental office.

*R. H. Roydhouse, BDS, MS, DDSC  
Professor of Restorative Dentistry  
Faculty of Dentistry  
University of British Columbia  
Vancouver 8, BC*

### Dental care for the aged

The article on the oral health status of residents in the three London, Ontario, homes for aged (November issue) again demonstrates the vast backlog of dental treatment required by Ontario's senior citizens. Doctor Martinello and Doctor Leake examined the dental needs of over 500 individuals; if their data were extrapolated to reflect conditions all across Ontario, I think the results would be devastating.

The real question is how to remedy this situation! In addition to educating the profession about the dental needs of the aged, we must organize all our facilities to treat the aged. How should we approach this problem? Should it rest solely with the various dental public health units in this province? Should we organize special dental clinics for "over sixty-five dentistry?"

Statistics, such as those presented by Doctors Martinello and Leake, must not be left unchallenged. I would like to hear some response to these and other questions across this country.

*Irwin Lightman, DDS  
2828 Bathurst St  
Toronto 19, Ont*

### Dental internship

Having read the "Dialogue" section in the December issue, I wish to say that I heartily concur with the concept of an internship as implemented by the University of Saskatchewan and as envisaged by Doctor Gordon Nikiforuk.

Since I spent one year as a dental intern at the Hospital for Sick Children in Toronto, I feel particularly qualified to make some general remarks about hospital internships.

First, the experience gained clinically is irreplaceable, especially if the clinical opportunities embrace as many dental disciplines as possible. Further to this point, lectures (both dental and relevant medical ones) should be supplemental in nature and should occupy a secondary position to the primary objective of providing interns with the most extensive and comprehensive clinical training possible. After all, he has the rest of his life to pursue academic textbook knowledge, but he will rarely, if ever again, have an opportunity to perform extensive clinical dentistry under the supervision of specialists in an institutional environment which provides total health care.

Secondly, it is my considered opinion that a rotating internship between an adult and children's hospital should be instituted despite any administrative difficulties that might arise. This would have tremendous value since a full calendar year in one hospital is superfluous. The internship experience would be broadened and made more meaningful if both adults and children were treated.

Thirdly, in any comprehensive internship, consideration must be given to the provision of emergency services — accident cases as well as those requiring attention because of acute pain — on a 24 hour basis. In the area of emergencies, the intern can acquire some

very valuable experience and learn to exercise clinical judgement. Interns should be actively encouraged, if not rigidly required, to do their utmost to retain a tooth or teeth of the natural dentition in emergency situations. Alternative treatment procedures with their concomitant consequences should be painstakingly explained to patients under these circumstances.

I sincerely hope that my remarks will be of some value to those in administrative positions within whose realm of authority it is to institute and be responsible for internship programs.

*G. J. Chong, DDS  
170 St. George St  
Toronto 180, Ont*

### History of Canadian dentistry

I have just finished reading Don Gullett's *A History of Dentistry in Canada*. It should be read by all dentists and dental students, not only those who are interested in history.

This book gave me the opportunity to meet again with many interesting people whom I admired and was privileged to know intimately and others whom I knew only by reputation.

It was with pride that I read about the many "firsts" attained by Canadian dentists which illustrated the inventiveness of our forerunners as well as their dedication and foresight.

It must have been a mammoth task to select the essential and most interesting facts from the records and trace the development of the various Canadian societies and organizations with such objectivity. This information is very skilfully condensed into a most readable 300 pages.

It is perhaps natural that the author who was so closely associated with organized dentistry in Ontario and Canada for such a considerable length of time and who likely initiated many of the actions should place particular emphasis on the part which the Canadian Dental Association played.

I have been a spectator of the scene since 1912 and have perhaps participated in a minor way. I have many personal recollections of people who crossed the stage during this colourful pageant.

Canadian dentistry is fortunate to have one member who has not only the ability and energy but the time to spend on the research, documentation and writing necessary for a work of this nature which the CDA made possible. Dentistry may well be proud of Don Gullett for presenting to us this exceptional achievement which is long overdue.

*R. J. Godfrey, DDS  
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## EXECUTIVE DIRECTOR'S PAGE

This progress report on the Board of Governors 1971 directives continues from last month.

### Acquisition of Ottawa property

The Board authorized the Executive Council to purchase a 1.09 acre property in Ottawa as the proposed site of a new headquarters for the Association. The property is located on Alta Vista Drive, immediately north of the new Canadian Medical Association headquarters. The Council was also instructed to develop building and financing plans for presentation to the Board at the 1972 annual meeting.

Subsequently, the Council appointed a committee to attend to the details. Satisfactory soil tests, survey and search of title were carried out and a down payment has now been made on the property.

After interviewing a number of architects and project managers from Toronto and Ottawa, the committee was unanimous in its selection of G. E. Wilson of Wilson, Newton, Roberts, Moody, Moore, Duncan, a Toronto based firm of architects. Mr. Wilson is presently developing plans for submission to the Executive Council and the Board.

### Press release on dental technologists

As recommended by the Board, the Executive Council, in consultation with corporate members, prepared a statement on dental technologists. In effect, this statement supported the pertinent recommendations of the Wells Ad Hoc Committee on Dental Auxiliaries. It proposes that registered dental technicians who have successfully completed an additional accredited educational program in intra-oral procedures and biological sciences could become technologists and that technologists could, on prescription by a dentist and under his supervision, perform the fabrication and fitting of complete dentures directly for the public.

On Thursday, December 16, 1971 this statement was given to the news media. At the same time the Ontario Dental Association, the Royal College of Dental Surgeons of Ontario and the Governing Board of Dental Technicians of Ontario issued press releases dealing with denture services. Copies of the four statements were supplied to the corporate members for their information.

### Conference on continuing education

Arrangements for a national conference on continuing education are progressing under the auspices of the Association's Council on Education. As this report goes to press, details for the conference have not yet been finalized. We are waiting for official confirmation of the financial support verbally promised by government officials.

Confirmation is expected momentarily.

### FDI Congress 1977

The Board directed the Executive Council to investigate the possibility of the CDA acting as host for the 1977 FDI Congress and to extend an official invitation if the role of host did not involve impractical obligations.

After carefully studying the pertinent FDI rules and regulations, the Council directed that an official invitation be extended.

The Executive Council also invited Murray Cornish, chairman of the CDA Convention Committee, to act as general chairman of the congress, should our invitation be accepted. Doctor Cornish has accepted and is now assembling the information concerning hotels, exhibit space and other details that must accompany the official invitation. Our invitation will be considered by the FDI General Assembly when it meets in Mexico City next October.

### CDA investment program

To increase the flexibility of the CDA investment program, the Board directed that it be extended to include an "interest account" in the registered plan and an unregistered "common stock fund."

Uncertainty with respect to Canada's new tax reform legislation and procedural delays in having our application considered by the federal authorities made it impossible to have either of these new programs in operation by January 1 of this year. However, the Insurance and Investment Council, working with the Royal Trust Company, is pursuing the matter and Association members will be notified as soon as these new plans are available for investment purposes.

### Constitution of Canada

The Nova Scotia Dental Association submitted a resolution to the 1971 Board proposing that the Association make further representation to the Special Joint Committee of the Senate and the House of Commons studying the Constitution of Canada, asking that the provinces retain jurisdiction in health care matters and that federal government involvement be limited to monetary and fiscal policies directed toward the attainment of the four qualifications set out in the Medical Care Act—that is, health care plans should be universal, comprehensive, portable and publicly administered.

A supplemental brief incorporating the resolution, approved by the Board of Governors, has been forwarded to the Special Constitution Committee.





# Sailingships & Sharks

*On the reefs and shoals of the West Indies lie thousands of shipwrecks. Most are victims of storms, faulty navigation and inaccurate sailing directions and some the result of naval actions. But all these shattered remains make up an archaeological record of the maritime history of the new world, available nowhere else.*

*"Sailingships & Sharks" is the story of a Canadian dentist who has explored the reefs associated with Anegada Island in the British Virgin Island group. The sea route to these islands has always been threatened by a dangerous lee-shore reef, 15 miles at sea and reaching from a low, above portion of the reef, Anegada Island, to Virgin Gorda, rising abruptly 20 miles to the south.*



Daniel Arnold Nelson

*Although not on the track of the great Spanish treasure fleets, the Anegada reefs border a major trade route to the Caribbean Sea and have, over the centuries, claimed more than 200 vessels.*

"The first shark is quite exciting, but after you've seen your first 50 or so, it doesn't seem like that much of a deal," says a St. Catharines, Ont, dentist.

Daniel Arnold Nelson, 39, who spends much of his time underwater, adds:

"Familiarity doesn't exactly breed contempt—you're always wary—but a lot of hard work and a fair number of sightings really get rid of the Tarzan complex in a hurry."

Dan Nelson may not feel like Tarzan, but he's just as active in the outdoors—or rather on and under the sea searching for the "treasures" of history.

Nelson has received two Canada Council grants for his organizing and direction of expeditions to the Anegada Reef of the British Virgin Islands. The part-time marine archaeologist, as research associate at the Royal Ontario Museum, led the search for shipwrecks of historical significance in the summers of 1968, 1969 and 1970.

Also, in 1969 he produced and wrote "Shipwrecks of Anegada," a half hour documentary sold to CTV's "Our World" series. It was also sold to United Artists Corp, New York, for a short subject to be shown in movie theatres.

In 1970 the still-practising dentist conceived and produced "Virginquest," a one hour TV special for CBC. It was shown October 6, 1971.

His plans for 1972 include an eight week excavation of one of the Anegada wrecks, sunk about 1740, and an electronic search of Lake Ontario for two US gunboats, the "Hamilton" and the "Scourge," lost in a squall during the War of 1812.

Also this year Nelson plans more films, a documentary series and a full-length movie.



"The Virginquest expeditions to Anegada have proceeded on two premises. First, traditional archaeological methods are not effective in the sea. And second, electronic methods can be devised which will allow much to be learned about the site and location and nature of its contents before the site is disturbed in any way," says Nelson.

"These methods might well be applied to pre-dig evaluation of land sites as well. The methodological approach to the investigation of sites is not as popular as the "object-oriented" approach," he says.

"Visions of piles of coins and beautiful artifacts appeal not only to the public, but to curators of museum collections as well. And pressure from many sources to begin to dig at the first indication of a buried target must often be resisted.

"The site-contained objects and information, the ultimate objective, will remain, however, and should be recovered in the proper sequence and at the proper time," says Nelson.

"Only recently have developments in integrated circuitry, designed by computers, in probing and sensing methods of unbelievable sensitivity and of miniaturized rugged instruments with minimal power requirements, encouraged attempts to evaluate shipwreck sites by electronic means," adds Nelson.

The 1968 expedition had many problems as first expeditions usually suffer. The 1969 expedition took a year of intense planning, says Nelson.

"Not only were several new shipwreck sites discovered, but methods of magnetic detection both in general search and during on-site survey were refined to the point where location was made quickly and accurately. The "jumbies"—those evil Caribbean gremlins—seemed to be elsewhere . . . but not everything went smoothly."

Contrary to instructions the vessel was not suitable when the expedition arrived in the Caribbean. Time was lost in makeshift arrangements and rough seas added to the problems.

"Two hundred pounds of lead had broken loose and were resting in one corner—rapidly sinking the dinghy. Hastening to a calmer part of the reef, two of us dove into the water and barely managed to drag the water- and lead-filled boat up on a convenient, large, flat coral head," says Nelson.

"During and probably because of the commotion, we noticed at least one medium-sized shark in the area."

But once the duo was on the coral head, they ceased to worry about the shark and concentrated on the dinghy's problems.

Then:

"As I lifted the 120-pound slab clear of the boat, the added weight was too much for the elk's horn coral on which I was standing. Suddenly the whole mass broke away—plummeting coral, me and the lead to the bottom—25 feet below!

"On return to the surface, I noticed the water becoming discoloured with blood from the many cuts and scrapes acquired in my rapid and unexpected trip to the bottom," says Nelson.

"With thoughts of blood-induced shark-feeding frenzies, I quickly swam to the main vessel 50 yards away. Happily, our visitor of 20 minutes previous had departed to parts unknown," adds Nelson.

Nelson's two years of mechanical engineering at



Weighting magnetometer for on-site use. Diver: D. A. Nelson.



Positioning magnetometer on site station.



Chipping out large artifact. Diver: D. A. Nelson.

Underwater photos courtesy of the Royal Ontario Museum.





A quaint old drawing showing divers at work on the wreck of the Royal George. The Royal George was sunk off Spithead in 1782, and the divers were at work on her during the summers of 1839 to 1844.

the University of Toronto were of particular advantage to him on the expeditions and for the use of sophisticated electronic equipment. He switched to dentistry and graduated from the university's dental course in 1958.

He returned to his home town of St. Catharines to open his practice, which he continues. He is a past president of the St. Catharines Dental Society and a director of the Niagara Peninsula Dental Association.

Nelson was always an active type whether in his professional life or in his other interests. For three

years he played end on the Varsity Blues in the senior intercollegiate football conference and coached the dental team for a year.

Tennis and squash are his present sports and he is past president of the St. Catharines Tennis Club. Besides the underwater life, Nelson often takes to the air. He's a licensed pilot.

The past expeditions to the Anegada reef brought up several artifacts and pinpointed the location of a few wrecks. The next trip will bring about more practical results of excavation, says Nelson.

(suite de la page 82)

Il faut à partir des techniciens dentaires créer des technologistes qui auraient reçu une formation professionnelle reconnue. Il faut permettre à ces technologistes de fabriquer, sur l'ordonnance du dentiste, des prothèses qu'ils pourraient ajuster sur les patients. Il faut enfin employer ces technologistes seulement dans les cabinets dentaires ou dans les cliniques et seulement sous la surveillance d'un dentiste.<sup>3</sup>

Si M. Castonguay et ses mandarins veulent dépenser leur énergie, qu'ils l'orientent dans cette direction.

Elle servirait alors à améliorer la capacité de travail des praticiens dentaires dont nous disposons, et nul n'aurait besoin d'inventer le "métier" de denturologiste.

- 1 Cour suprême de la Colombie-Britannique Collège des Chirugiens-Dentistes de la CB vs. Ernest Kilbourne Cleland. 2 fév 1968; 15 oct 1968; 14 fév 1969.
- 2 Canada. Rapport du Comité spécial d'étude sur les auxiliaires dentaires. Ottawa, Information Canada, 1970.
- 3 Service de prothèses (Denture service). J Ass Dent Canad 37:205, 1971. Editorial.



# Dentistry in the news

At the same time, in the Hampstead Room, Col. William R. Thompson and Lt.-Col. A. G. Andrews will deal with the subject of "Impacted Teeth: Diagnostic, Anaesthetic, Surgical and Post-surgical Complications." In their presentation the two officers will discuss diagnosis including the rationale for removing asymptomatic impacted teeth; premedication and anaesthetic considerations; practical surgical procedures and prevention and treatment of post-surgical impactions.

Col. Thompson is command dental officer for the Ontario region and oral surgeon at the Canadian Forces Hospital in Kingston.

## Simultaneous Translation

Convention Chairman Murray Cornish has announced that simultaneous translation in French and English will be available at sessions of the Board of Governors during the 1972 national convention in Montreal. At least one member of each reference committee will also be bilingual so that the committees may conduct their business in either official language. French and English speaking dentists are invited to participate and express themselves in the language of their choice.

## National Convention

### Canadian Forces' speakers will cover wide spectrum

The day-long program presented by the Canadian Forces Dental Service on Tuesday, June 6, will cover a wide spectrum of topics aimed at meeting the needs of today's general practitioner.



Lt.-Col. A. G. Andrews



Maj. J. F. Begin

Lt.-Col. Andrews is a lecturer in oral surgery at Dalhousie University and is presently base dental officer at CFB Halifax.

In the Lachine Room at 9:00 am Maj. John F. Begin will speak on "Education and Motivation in Practice," followed by Maj. Leland A. Reynolds, at 10:15, speaking on the "Principles of Periodontal Therapy."

Maj. Begin obtained his diploma in dental public health from the University of Toronto in 1970 and is presently on staff at the Canadian Forces Dental Service School as the preventive dentistry officer. His presentation will cover basic concepts related to the principles of learning and teaching as well as the psychology of motivation as it applies in the Armed Forces preventive dentistry program. He will discuss in particular an approach to chairside instruction, office educational opportunities and the brush-in as an instruction technique for individuals or groups.



Lt.-Col. P. S. Sills



Col. W. R. Thompson

Lt.-Col. Paul S. Sills, chief instructor and head of prosthodontics at the Canadian Forces Dental Service School, Base Borden, will launch the military's "continuing education day" at 9:00 am in the Hotel Bonaventure's LaSalle Room. His topic will be "Designing the Removable Partial Denture."

Lt.-Col. Sills' presentation will suggest a simple organized approach to denture designing that involves surveying, selection of components, mouth preparations and impression methods for tooth-borne and free-end extension removable partial dentures.



Maj. L. A. Reynolds



Maj. Noel Andrews

Maj. Reynolds is assistant chief instructor and head of periodontics at the Forces Dental School and his presentation will emphasize the biologic and preventive principles used in case management. He will review causative factors and the methods of control of gingivitis and periodontitis and will discuss various techniques employed as a means of pocket elimination.

Maj. Noel Andrews' presentation in the Verdun Room will deal with "Periodontal Therapy in General Practice." His paper will include a review of the features of the periodontium in health and disease; a discussion of gingivitis and periodontitis from the aspects of aetiology, diagnosis, prevention and management; and a presentation of clinical periodontal therapeutic procedures of interest to the general practitioner.

Maj. Andrews is an instructor in periodontics at Dalhousie University.



Maj. H. J. Marion



Maj. J. O. Bourget

The sessions to be held in the Côte St-Luc Room will be conducted in French with Maj. J. O. Leo Bourget discussing "Pulpal Biology" and Maj. H. Jean Marion speaking on "Preventive and Interceptive Orthodontics."

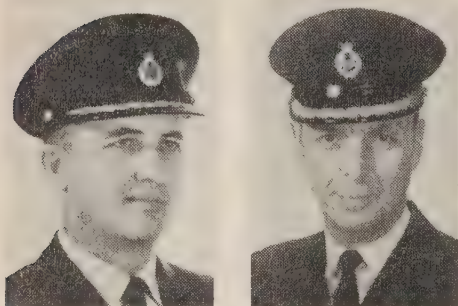
Maj. Bourget is an instructor in post-graduate procedures in restorative dentistry and fixed prosthesis at the Forces Dental Service School at Base Borden. His paper will summarize the latest concepts of pulpal biology and indicate in a practical way the precautions a dentist must take to minimize pulpal



damage resulting from use of rotary instruments, materials and drugs.

Maj. Marion's paper will outline standards for determining occlusal development in children aged three to 12 years, including the recognition of landmarks and the establishment of normal occlusion for diagnostic purposes. With these criteria, preventive and interceptive measures that may be used in a general clinical practice will be examined.

Maj. Marion received his master's degree in orthodontics from the University of Montreal in 1971 and is now stationed at CFB Cold Lake, Alberta.



Col. J. N. Wright

Maj. A. G. Taylor

Finally, in the Mount Royal Room, Col. James N. Wright, base dental officer at CFB Cold Lake, will discuss "Oral Pathology in the Everyday Practice of Dentistry" using coloured slides to demonstrate the importance of this aspect of dentistry. Differential diagnosis of selected groups of lesions will be studied.

Also in the Mount Royal Room Maj. A. G. Taylor will address delegates on "Dental Conditions Among the Inhabitants of Easter Island." In 1964 a research group set out from Halifax to carry out a project on Easter Island and Maj. Taylor was the dental representative with that expedition. His presentation will cover the results of the dental survey carried out on 236 adult inhabitants of the island.

Maj. Taylor is presently the base dental officer at Chilliwack, BC.

The sessions scheduled in each of the six rooms will get underway at 9:00 am and each session will be repeated in the afternoon.

### Guidelines for critical interpretation of radiographs

D. Lorne Catena will provide dentists with some valuable guidelines for interpreting radiographs when he speaks to the CDA's general meeting Wednesday, June 7, on "Radiologic Assessment of the Dentition as it Affects the Practitioner."

Doctor Catena is assistant professor with the Department of Oral Radiology, School of Dental Medicine, University

D. L. Catena



of Connecticut Health Centre. His presentation, designed to assist the general or specialty practitioner in evaluating the radiograph from the standpoint of treatment, will focus on the critical interpretation of radiographs in assessing both developmental and acquired abnormalities affecting the teeth. Emphasis will be in the area of morphologic variation due to anatomy, genetic effects and other specific factors.

A 1964 dental graduate of the University of Toronto, Doctor Catena was awarded his master's degree (pathology and radiology) by the same university in 1968. He spent three years in general practice and a year and a half as an associate in a specialty practice limited to radiology.

Prior to his appointment as assistant professor at the University of Connecticut's School of Dental Medicine, Doctor Catena was an instructor in radiology, oral pathology and honour genetics at University of Toronto and assistant professor of radiology at Temple University's School of Dentistry.

He is a member of both the Canadian and Ontario Dental Associations, the International Association of Dental Research, the American Academy of Dental Radiology and the International Society of Maxillo-Facial Radiology.

A former staff member and teaching affiliate at Toronto Western Hospital, Doctor Catena now serves as a consultant in radiology at the Albert Einstein Hospital in Philadelphia and as a national consultant with the Bureau of Radiologic Health, US Public Health Service.

He is credited with numerous clinics and papers presented to various local, state, and provincial, and national societies and organizations.

### Book now for private reunions

Specialty group functions and class reunions are now being scheduled for Monday, June 5, the free evening during the CDA national convention in Montreal.

Groups wishing to arrange reunions or other private functions Monday evening should write, specifying their needs, to F. J. Glover, Business Manager, CDA National Convention, 234 St. George St, Toronto 180, Ont.

### Convention bulletins supplement Journal

The Canadian Dental Association is publishing three special convention bulletins to provide Canadian dentists with news of the 1972 national convention, slated for June 4-7 in Montreal.

These newsletters will supplement monthly Journal articles to give a continuous up-dating of planned events right up to convention time. English and French language editions are published simultaneously.

In addition, a special 13th edition of the Journal with a comprehensive breakdown of the events and program is now being prepared.

Don't wait. Fill out the registration form in this issue of the Journal and return it, with your cheque, today! The deadline for convention pre-registration is April 30, 1972.

### CP Air offers trip to Australia as a draw prize

CP Air will offer two economy-class tickets to Sydney, Australia, as prizes in a lucky draw to be held at the Montreal national convention.

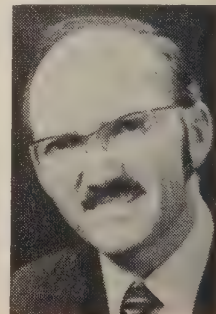
Winners of the draw prizes, valued at about \$1,300, will have free passage to the 1973 Fédération Dentaire Internationale annual session in Sydney, July 15 to 20.

CP Air also plans to set up a reconfirmation booth at the convention to assist delegates with reconfirmation and return reservations.

### CDA Caribbean Dental Program

Since June 1970, a number of Canadian dentists have volunteered their services for short-term assignments in developing countries under the auspices of the Canadian Dental Association's Caribbean Dental Program.

Delegates to the Montreal convention will have an opportunity to learn more about this exciting program and how it works from G. E. Burgman, Niagara



G. E. Burgman



Falls, chairman of the program's selection committee.

Although assignments in developing countries invariably entail a measure of sacrifice—accommodation and working facilities are often less than ideal—Doctor Burgman reports that volunteers have found the experience both enjoyable and rewarding.

The presentation on the CDA Caribbean Dental Program is scheduled for Monday afternoon, June 5.

### **Surgical endodontics in simplified form**

"Surgical Endodontics Simplified" is the topic lined up for a clinic to be given Wednesday afternoon, June 7, by Isadore Wolch of Winnipeg.



Isadore Wolch

Doctor Wolch, assistant professor and head of endodontics at the University of Manitoba, is president of the Canadian Academy of Endodontics.

In his presentation, Doctor Wolch intends to demonstrate that a full resection is not always essential; that surgical trephination can be sufficient in many cases.

Slides and a short movie will be used to illustrate, step by step, the technique for retrograde resection. In addition, Doctor Wolch will have on hand examples of perforation repairs to demonstrate how teeth previously condemned for extraction can now be saved.

### **International officials to speak at FDI breakfast**

International officials of the Fédération Dentaire Internationale will speak at the FDI breakfast during the CDA national convention. The event is slated at the Queen Elizabeth Hotel, 8:00 am, Tuesday, June 6.

Discussion will centre on the 1972 World Dental Congress in Mexico City and on Canada's forthcoming bid to hold the 1977 FDI Congress in Toronto in conjunction with the CDA convention. This would mark the first joint meeting of the two organizations.

Many Canadian dentists will attend the 1972 Congress in Mexico City to offi-

cially present this country's bid to host the 1977 FDI meeting.

Tickets for the informal, continental style breakfast will be available at the convention registration desk or at the door. The tickets will either be sold for a very nominal amount or will be complimentary.

## **Canada and the Provinces**

### **Treatment of minors and "age of consent"**

Dentists are reminded that anyone who treats a minor under the age of consent (specified by the province in which treatment is given) without parental consent is contravening the law.

The age of consent ranges from 21 in Prince Edward Island, New Brunswick, Quebec and the Yukon Territory to 18 in Alberta, Manitoba and Ontario. It is 19 in British Columbia, Saskatchewan, Newfoundland, Nova Scotia and the Northwest Territories.

The Canadian Medical Association recently asked former Justice Minister John Turner to lead moves for a uniform age of consent across Canada. Noting that this is a provincial matter, Mr. Turner urged the CMA to put its position before the Conference of Commissioners on Uniformity of Legislation in Canada, which has recommended 18 as the uniform age.

### **Ottawa unveils realignment in the federal health department**

Sweeping internal changes in the Department of National Health and Welfare were announced on January 17 by Federal Health Minister John Munro.

The health side of the department has been reorganized into three program branches: Health Protection, Health Programs and Medical Services. Each will be headed by assistant deputy ministers — A. B. Morrison, J. L. Fry and J. H. Wiebe, respectively.

The Health Protection Branch has been formed by amalgamation of three directorates — the former Food and Drug Directorate, the Environmental Health Directorate, and the former Canadian Communicable Disease Centre — along with the Epidemiology and Nutrition Divisions. The new branch has six organizational units. They are: Foods, Drugs, Environmental Health, Laboratory Centre for Disease Control, Field Operations and Administration Services.

The Health Programs Branch is the new name for the former Health Insurance and Resources Branch. Most of the consultants, including the Department's



Jacques Fiset of Montreal is the new president of the Canadian Academy of Prosthodontics. He succeeds A. H. Crowson of Ottawa. Doctor Fiset, a charter member since the foundation of the academy in 1963, has been an executive member for six years.

dental health consultant, have been transferred to this branch where they will be available to provide consultant and advisory services internally and externally.

The Medical Services Branch will continue to focus primary attention on the provision of health services to Indians in the provinces and to all residents in the Yukon and Northwest Territories. Due to its role in stockpiling medical supplies, Emergency Health Services is also being transferred to the Medical Services Branch.



H. Lindsay Mussells, who practises in Westmount, Que., is the new president of the College of Dental Surgeons of the Province of Quebec, succeeding Marcel Archambault of Montreal. A graduate of McGill University, where he is also a lecturer, Doctor Mussells is a Quebec delegate to the CDA Board of Governors. He served as president of the Montreal Dental Club in 1969 and has been vice-president of the Quebec college since then.



## International Items

### American oral surgeons plan May conference in Boston

"Modern Spectrum of Oral Infections and Inflammations" will be the theme of the American Society of Oral Surgeons' 1972 continuing education conference to be held May 21-23 in Boston.

The program format consists of a series of four clinicopathological conferences to cover bacterial infections, chronic granulomatous infections, acute vesicular bullous lesions and infections of special interest to the oral surgeon. A scientific motion picture program is also scheduled.

Participants preregistering by April 15 will be provided case summaries in advance of the conference. Diagnosis and prognosis for each case will be given at the end of the session.

The registration fee, which includes two breakfasts and a luncheon in the Sheraton-Boston Hotel, is \$75 for ASOS and American Academy of Oral Pathology members and \$90 for non-members. Programs and registration forms may be obtained from the American Society of Oral Surgeons, 211 E Chicago Ave, Chicago, Ill 60611, USA.

### Lebanon invites Canadian dentists

Canadian dentists have been invited to the Third Dental Conference of the Dental Section of the Middle East Medical Assembly in Beirut, Lebanon. The meeting will be held April 27-29 at the American University of Beirut.

For further information, contact J. W. Tamari, Secretary General, Dental Section, Middle East Medical Assembly, American University of Beirut, Avenue Clémenceau, Beirut, Lebanon.

## Dental Organizations

### Fraternity asks Russia to release Jewish dentist

Alpha Omega, the international Jewish dental fraternity, has appealed to the Soviet government to permit a Russian-Jewish dentist from Leningrad to emigrate to Israel.

Boris Azernikov was convicted last year under laws pertaining to "anti-Soviet agitation and propaganda" and "anti-Soviet organizational activity or membership." Alpha Omega contends he was arrested for possessing a book of poems by Bialek, a Hebrew calendar, and copy of a letter protesting the de-

nial of visas for emigration to Israel.

The fraternity has appealed to members of the dental profession to communicate with the Soviet Embassy expressing concern.

### Quebec orthodontists elect Doctor Baril

Claude Baril, Montreal, was recently named president of the Quebec Association of Orthodontists. He succeeds H. L. Levitt, also of Montreal.

Named vice-president was M. D. Renert, Montreal. J. P. Couture, Verdun, is secretary and L. L. Prosterman, Montreal, is treasurer. Lucien Bossé, Dorval, is also a member of the QAO executive.

### Ottawa Dentists form Endodontic study club

A group of Ottawa dentists recently announced the formation of an endodontic study club.

Jack Berman, a dental graduate of McGill University, was named president of the new group and I. F. Goodin is secretary-treasurer. Peter Brothman was appointed program chairman.

## CDA Retirement Savings Plan

Unit values of the Canadian Dental Association Retirement Savings Plan stood as follows on January 31, 1972:

*Fixed Income Fund* \$12.780;

*Common Stock Fund* \$26.273.

Total assets (market value) of the plan were \$11,808,397.78.

There were no portfolio purchases or sales during the preceding month.

For further information please write to CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto 180, Ont.

## Dental Education

### April 1 is deadline for CFDE fellowship applications

Applications are now being invited for teacher/researcher training fellowships, it has been announced by the Canadian Fund for Dental Education. Forms and additional information may be obtained from the dean of any Canadian dental school or the Canadian Fund for Dental Education, 234 St. George St, Toronto 180.

Candidates must declare their firm intention to become teacher/research-

ers in a Canadian faculty of dentistry. Preference is given to applicants who will return to a full-time teaching/research position in a Canadian dental school. The minimum commitment in this regard is two days per week. A fellowship recipient is required to give a faculty one year of full-time service or two years of half-time service for each year he receives CFDE aid.

Applicants must be Canadian citizens or possess landed immigrant status. They must have completed an undergraduate course in dentistry or a program in science and be eligible for admission to a graduate school.

Each fellowship is for one year of graduate study and may be renewed for subsequent years if progress is satisfactory.

The value of a fellowship varies according to the cost of the program of studies, other income of the applicant and the resources of the CFDE. It is hoped that a full fellowship will be adequate to cover tuition and to assist substantially in defraying living expenses.

The CFDE Advisory Committee on Fellowship Selection reviews all applications. Its recommendations are made to the Fund's Board of Trustees and fellowship awards will be announced early in May.

The Fund has awarded 98 teacher/researcher fellowships totalling \$182,359 to 67 dentists since the program was started in 1964.

### CFDE income exceeds \$100,000 for first time

Canadian Fund for Dental Education receipts in 1971 totalled \$104,996, a new all time high and a 15.4 per cent increase over the previous year, according to Charles E. Peirce, vice-chairman of the Fund's Board of Trustees.

"Contributions from both dentists and business firms moved sharply ahead with respective increases of 20 per cent and 28 per cent. This substantial improvement in support is most encouraging and will enable the trustees to do an even more effective job of moving dentistry up," said Mr. Peirce.

### \$1,500 fellowship for a university dental teacher

The Canadian Fund for Dental Education seeks applications for its annual fellowship for an existent dental teacher. The \$1,500 award, which is funded by a grant from Warner-Lambert Canada Limited, enables an established teacher to refresh and extend his knowledge in any field of dental education or education research.

Candidates must be full-time members of the teaching staff of one of the



Canadian dental schools with a minimum of five years' university teaching experience.

The proposed program of study must be well defined and of not less than one month's duration. Applications by letter giving details of the contemplated program of study should reach the Canadian Fund for Dental Education, 234 St. George St, Toronto 180, not later than April 1. Each application should be accompanied by a curriculum vitae and a letter of support from the applicant's dean or other appropriate senior university official indicating approval of the study period and its benefits to the university and the applicant. Full particulars of the fellowship may be obtained from the dean in each dental school or the CFDE.

The CFDE's Advisory Committee on Fellowship Selection will review all applications and recommend an award winner to the Board of Trustees.

## **Educational opportunities**

### *Continuing education*

McGill University, Montreal, in conjunction with the American Association of Endodontists Endowment and Memorial Foundation, offers a three day course in "Current Concepts in Endodontics," April 10-12. The course precedes the combined annual meeting of the Canadian Academy of Endodontics with the American Association of Endodontists.

Included among the participating clinicians are Samuel Seltzer and I. B. Bender, Philadelphia; Harold Gerstein, Chicago; and J. I. Ingle, Los Angeles.

The registration fee, \$175, also entitles participants to attend the combined scientific meeting of the Canadian and American endodontic societies at the Queen Elizabeth Hotel, Montreal, April 13-16.

For further information, write to Miss Helen Hogan, Faculty of Dentistry, McGill University, PO Box 6070, Montreal 101, Que.

## **Economics**

### **Task force to study Ontario mechanics**

The dental mechanics issue will be investigated by a three member lay task force appointed under the Ontario Council of Health, the *Toronto Globe and Mail* reported January 12. The Council is the senior advisory body to the provincial health minister.

The terms of reference are that the task force "develop recommendations

regarding the role and scope of practice of dental technicians for the consideration of the Human Resources Committee after hearing from dentists, dental technicians and other interested groups."

The Human Resources Committee, after considering the recommendations, will forward them to the Council of Health.

Chairman of the task force will be Toronto lawyer Donna J. Hayley. Members are C. M. Birkett of Hamilton, a retired steel company executive, and W. D. Wilkins, a Toronto printing company executive.

Three similar groups have been appointed to make recommendations on the scope of practice and educational requirements in chiropractic, chiropody and mental health services.

The task forces were asked to make preliminary recommendations by February 29.

Appointment of the four task forces is part of a variety of studies by the Ontario Council of Health and its committees begun with the announcement a year ago by Thomas Wells, then health minister, of a Health Disciplines Regulation Board.

The Council, through its committees, is considering the regulation and educational requirements of at least 50 health occupations.

The Council has been concerned about needless proliferation of occupations, and wants regulation and training programs designed to provide necessary workers in the most economical manner.

### **Bid to bar doctor declared unlawful**

An attempt by three St. Catharines, Ont, physicians to prevent another physician from practising within five miles of them has been ruled unlawful.

A. N. Horwitz applied to the Supreme Court of Ontario to set aside the contract he had with three other physicians. Doctor Horwitz, an obstetrician and gynaecologist, went to work at the St. Catharines Medical Centre owned by the other three physicians with an agreement to receive 60 per cent of his earnings.

When he left, the other three invoked a clause in their agreement under which Doctor Horwitz had promised not to practise within five miles of St. Catharines for five years. Doctor Horwitz asked the court to release him from the promise.

Mr. Justice Donohue said that "In the public interest, this restricted covenant is unenforceable." He noted that the medical profession has a monopoly on the care of citizens of Canada and "to widen that monopoly would be injurious to the public interest."

## **Australian dentists back prepayment corporation**

The Australian Dental Association will establish a non-profit prepaid dental care program, according to A. G. Bloomfield, president of the Australian Dental Association. His group will create a national corporation with branches in each Australian state that will contract with groups to provide comprehensive dental care. The program will be modelled closely on the American Delta Dental Plan system.

Under the plan, a member would pay 25 per cent of the bill to any dentist of his choice and the fund would pay the remainder. The minimum benefit would be 75 per cent. The member's contribution would be about \$5 a month to cover the member and his family and would be paid by the employer, union or some other organization to which the member belonged.

## **American UAW Ford Co employees to get prepaid dental care**

The United Auto Workers (UAW) in the United States have selected the Delta Dental Plan system as the carrier for a voluntary, prepaid dental care program for Ford Motor Company motor workers represented by UAW.

The dental care program for UAW members and their families, which began on January 1, 1972, is financed through a voluntary payroll deduction mechanism agreed upon in negotiations last year between the UAW and Ford. It provides basic comprehensive services subject to necessary deductibles, maximums and co-insurance factors.

## **Fluoridation**

### **Swedish parliament voids fluoridation law**

Sweden, by recent act of parliament, has repealed a 1960 law under which towns could get permission to fluoridate tap water. The 137-126 vote voids a recommendation by the parliament's Social Insurance Committee to retain the law.

Opponents of the law had argued that fluoridation was compulsory mass medicine, that there was now more diversity of opinion on possible harmful side effects and that other methods of preventing dental disease were as effective as fluoridation.

Repeal arguments claimed that the 1962 law had been passed primarily to enable the city of Norrköping to continue with fluoridation experiments which had been discontinued in 1961



by a ruling of the Supreme Administrative Court. The experiments were never completed, however.

Opponents of the law also argued that although the World Health Organization was in favour of fluoridation, that body had at one time also been in favour of DDT. They also claimed (incorrectly) that infant mortality in the United States rose after the introduction of fluoridation.

The Social Insurance Committee argued that there is no proof that fluoridation has any harmful side effects. The committee also pointed out that fluoride, as a naturally occurring element, should not be put in the same category as DDT or thalidomide or other artificial drugs that have proved harmful.

Repeal of the law means only that fluoridating tap water is illegal. Fluoride treatment and tablets can still be obtained at child care centres, schools and adult clinics.

### California sets state topical fluoride program

Governor Ronald Reagan of California recently signed a law calling for state-wide applications of topical fluoride or other decay-inhibiting agents for all school children.

Under the measure, a program for providing annual topical applications to all public and private elementary and secondary school students must be in operation by September of this year.

The program will be under the supervision of dentists and may include self-application.

## Public Health

### CDA "recognizes" two therapeutic dentifrices

The Canadian Dental Association has recognized two products as therapeutic dentifrices that dentists may recommend as part of a decay-preventive program for their patients. They are Procter & Gamble's *Crest* and Colgate-Palmolive's *Colgate with MFP*.

The action stems from a recent decision by the Board of Governors to identify dentifrices with proven therapeutic value for the benefit of the profession and the public. This identification is based on official reports of the Council on Dental Therapeutics of the American Dental Association and on the manufacturers' written assurance that products marketed under a similar brand name in Canada and the United States are identical in terms of functional ingredients and anti-caries agents.

The Association has also authorized the use of the following statements that

place the use of each product within the framework of proper oral hygiene and regular professional care:

*"Crest has been shown to be an effective decay-preventive (anti-caries) dentifrice that can be of significant value when used in a conscientiously applied program of oral hygiene and regular professional care."*

*"Colgate with MFP has been shown to be an effective decay-preventive (anti-caries) dentifrice that can be of significant value when used in a conscientiously applied program of oral hygiene and regular professional care."*

The general *Crest* formulation contains 0.4 per cent stannous fluoride, 39 per cent calcium pyrophosphate, 10 per cent glycerine, 20 per cent sorbitol, 26.54 per cent water, flavouring and colouring and 3.06 per cent miscellaneous formulating agents.

The general *Colgate with MFP* formulation contains 0.76 per cent sodium monofluorophosphate, 41.85 per cent insoluble sodium metaphosphate, 17 per cent sorbitol, 10.03 per cent glycerine, 5 per cent anhydrous dicalcium phosphate, 19.09 per cent water, 2.05 per cent sodium N-lauroyl sarcosinate and 4.2 per cent miscellaneous formulating agents.

## Research

### Balanced occlusion can avert TMJ pain

All forces directed at an inclined plane produce a resultant force at right angles to that plane, according to an expert in restorative dentistry who participated at a panel discussion on occlusion at the CDA national convention in Ottawa. W. R. Scott, of Vancouver, said that teeth whose shape and arrangement favour lateral stress may loosen when that stress exceeds the physiological tolerance of the periodontium.

Doctor Scott warned that pathological drifting may follow the loss of teeth which are essential to a functional dentition. This in turn disrupts the balance of occlusal forces and eventually alters the shape and curvature of the arches.

All manner of pathological problems – including temporomandibular joint pain – can arise from neglecting to replace lost teeth. Selective grinding will only give relief for a few hours or days at the most, if the space in the arch is not eliminated and the incisal guidance restored, he said.

When using a fixed bridge to replace missing teeth, the opposing teeth must also be reshaped to forestall future wear and a recurrence of balancing interference.

Silver amalgam fillings may be contoured to harmonize with the forces of occlusion but should never be reduced until they are no longer functional, said Doctor Scott.

When preparing upper anterior teeth for inlays or crowns, their lingual surfaces must be cut away to accommodate a sufficient thickness of the restorative material. But the opposing lower teeth should not be shortened because this may shorten the incisal guidance, causing a potential balancing interference on the opposite side of the arch.

Turning to porcelain-baked-on-gold restorations, the Vancouver dentist said it is difficult to reproduce cusps, ridges and sulci in porcelain. But the new multibladed carbide finishing burs facilitate vibration-free occlusal correction of gold, porcelain, amalgam or tooth structure and leave a very smooth finish.

### Chemical elements in water linked to caries reduction

Trace elements found in drinking water, in addition to fluoride, may affect the decay susceptibility of teeth, a dental scientist told the American Dental Association's annual scientific session in Atlantic City last October.

Fred Losee, Rochester, NY, said that some chemical elements, such as molybdenum, strontium, boron and lithium, may have caries inhibiting characteristics. Other elements, such as copper and lead, appear to encourage the development of caries.

Certain trace elements may increase the effectiveness of fluoride in making tooth enamel caries resistant, Doctor Losee said. Scientists are continuing to "search for other measures which may eventually be of value in supplementing the effects of fluoridation," he said.

### Rebuilding bone; may help edentulous person

Two American investigators have reported success in triggering new bone formation which may offer hope for the edentulous person and for accident victims with shattered bones.

Marshall Urist, of the University of California at Los Angeles, found that implanted bits of demineralized bone would cause new bone to develop even in muscle where bone is not normally found.

More recently, Herbert Wells and his associates at Boston University School of Graduate Dentistry, in developing uses for demineralized bone, which is easy to obtain and to carve, used treated dog bone to fill holes in dog jaws, and rat bone for bridging large gaps in rat leg bones.



The grafts were uniformly accepted and in two months new bone, microscopically indistinguishable from the original bone, had replaced the graft and repaired the defect.

When Doctor Wells used demineralized bone from other species, he found that a surprising 45 per cent of the grafts were retained and slowly induced some new bone even though the other 55 per cent were rejected. Apparently the organic matrix of bone is a powerful inducer of new bone formation.

This research, together with an earlier report of successful clinical use of decalcified bone in three cases, offers promise that treated human bone may be used to elicit formation of new bone. At present there is no reliable way to induce the body to restore the appearance and function lost when large areas of bone are destroyed by disease or accident. Only bone taken elsewhere from an individual's body has seemed able to repair damage.

Replacement of alveolar bone is of especial interest to dentists because it resorbs in periodontal disease and also tends to diminish under pressure of dentures so that they are hard to retain.

### Remove impacted third molars during late teen years

Impacted third molars should be removed during the late teens, according to J. W. Thatcher, a University of Iowa oral surgeon.

Addressing the American Dental Association's scientific session last October, Doctor Thatcher said: "Third molars should be removed prophylactically by age 17 or 18 for several reasons. First, the tooth is only partially developed at this time and more easily removed. Secondly, jaw growth is near completion and if there is not adequate space for their normal eruption by age 18 the condition won't change with time. Thirdly, the young patient can withstand the stress of the surgical procedure better than might be the case later in life."

Causes for tooth impactions vary and can include dental arch growth deficiency, systemic diseases, presence of supernumerary teeth, displacement of a tooth by a neoplasm or tumour, retention of primary teeth or malformation of teeth, he added.

### Another type of bacteria attacks bone, causes decay

Investigators at Forsyth Dental Centre, Boston, have isolated from human plaque a strain of streptococcus resembling *S. salivarius* which causes severe loss of jaw bone as well as tooth decay when inoculated into the mouth of germ-free rats. The inflammatory cells characteristic of most resorbing alveolar

bone were not seen in the result of this infection.

The scientists, Jens Kelstrup and R. J. Gibbons, report that the streptococcus, known as strain 1A, is capable of making a firm, clear, sticky plaque both above and below the gum line. The distribution of the plaque depends to a considerable extent upon the rats' diet.

Strain 1A will grow and produce acids on a number of sugars including levan, which it also synthesizes, perhaps to serve as stored food when simpler sugars are not available. However, sucrose is the only substrate from which it makes a sticky, high-molecular-weight polysaccharide, apparently a glucan similar to dextran.

The polysaccharide made by strain 1A from table sugar not only sticks to teeth and gums, but also makes 1A cells grown on this sugar clump together. It does not agglutinate these bacteria if they are grown on other sugars. This binding of bacteria to each other and to mouth tissues in a thin plaque enables them to concentrate in sufficient numbers long enough for their acids to damage the tissue.

This new finding negates the common belief that most oral micro-organisms that live below the gum line and form plaque on tooth roots or contribute to gum inflammation and loss of alveolar bone are filamentous or rod shaped, while most of those that cause decay above the gum line either in crevices or on the smooth sides of teeth are round, coccid forms.

## Deaths

Bellemare, Romeo P. 72. Yamachiche, St-Maurice, Qué. Université de Montréal, 1923. 1-7-71.

Chatel, J. Herman. 60. Montréal. Université de Montréal, 1937. 30-12-71.

Couture, Aime. 75. Hull, Qué. Royal College of Dental Surgeons of Ontario, 1919. 23-1-72. Survived by Claude, Guy and Maurice (sons) and Jacqueline (daughter). Associate member CDA.

Croft, Robert Frederick Hastings. 69. Kitchener, Ont. Royal College of Dental Surgeons of Ontario, 1925. 19-12-71. Survived by Elizabeth (wife); Mrs. Robert Fewster (daughter); and Robert (brother).

Holden, A. 77. Winnipeg. Registered under Manitoba Provincial Act 1923. 31-12-71.

Leger, L. Oswald. 74. Saint John, NB. Université de Montréal, 1919. 11-1-72.

Morrow, Margaret Annetta. 72. Toronto. Royal College of Dental Surgeons of Ontario, 1921. 26-1-72.

Reid, Clifford George. Erin, Ont. Royal College of Dental Surgeons of Ontario, 1922. December 1971. Survived by his wife.

## In memoriam

### Abram Slone

Abram Slone, Ottawa, died on November 21, 1971, at the age of 79.

Born in Lithuania, Doctor Slone emigrated to Canada as a young boy and served with the Canadian Army during the first World War.

He graduated from the University of Toronto's Faculty of Dentistry in 1919 and, a year later, became the first Jewish dentist to open a practice in the city of Ottawa.

Doctor Slone was president of the Ottawa Dental Society from 1955 to 1956 and was elected president of the Eastern Ontario Dental Association in 1959.

His active participation in the life of his community earned him a number of awards from various civic and religious groups and in May, 1970, he was honoured by the Ontario Dental Society for 50 years of devoted service to his community.

Doctor Slone is survived by his wife and two sons, Morton and Joel.

### Walter Wood

Walter Wood, Toronto, died on December 11, 1971, at the age of 63.

A former dental laboratory owner, Mr. Wood was a prominent supporter of the Canadian Fund for Dental Education.

Mr. Wood joined the army as a dental technician at the onset of World War II and rose to the rank of captain. During his military service he created the syllabuses for various technician training courses and later functioned as a chief instructor for these courses. In addition, he was responsible for the planning and organizing of many army dental laboratories.

Following demobilization at the end of the war he opened his own laboratory in Toronto, the Walter Wood Dental Laboratory Ltd.

In 1966 he was asked by officials at George Brown College, Toronto, to guide them in developing a much-needed training course for dental technicians. He sold his business and joined the college staff as administrator and co-ordinator of the new program.

Mr. Wood was a member of Ontario's Governing Board of Dental Technicians and of the Dental Laboratory Association of Ontario.

He is survived by a daughter, Mary Beth, and a son, Stephen.



## Les actualités dentaires

### Inscrivez-vous tôt aux réunions privées

On prévoit dès maintenant des programmes sociaux pour certains groupes de spécialistes ainsi que pour des promotions de classes, lundi le 5 juin, seule soirée libre pendant le congrès qui se déroulera à Montréal.

Les groupes qui désirent organiser des réunions ou autres activités pour ce lundi soir sont priés d'écrire, en spécifiant leurs besoins, à F. J. Glover, gérant général, Congrès national de l'ADC, 234 rue St-George, Toronto 180, Ont.

## Le Canada

### Projet de loi québécois visant à légaliser la denturologie

Une nouvelle législation qui créerait une "Corporation professionnelle des denturologistes" a été déposée à l'Assemblée nationale du Québec à la fin de l'an dernier. Le projet de loi 266 n'est que l'un des 34 projets qui gravitent autour du Bill 250 (le Code des professions, tel que décrit à la page 14 du Journal de janvier). Tous ont pour but de centraliser et de reformuler le rôle des différentes professions.

Ce nouveau projet de loi traite des techniciens dentaires et des denturologistes. Il décrit la denturologie comme tout acte qui a pour objet de vendre, de fournir, de poser ou de remplacer des prothèses dentaires amovibles qui remplacent la dentition naturelle. Ces actes seront "réservés aux denturologistes". Cependant ces derniers ne pourront poser aucun acte qui a pour objet de diagnostiquer ou de traiter les maladies des dents, de la bouche ou des maxillaires chez l'être humain.

L'article 14 du projet de loi indique que "rien dans la présente loi ou dans les règlements . . . ne saurait prohiber la vente ou la fourniture de prothèses dentaires à un dentiste ou un denturologiste".

### Québec: Retard dans l'application du régime de soins dentaires pour enfants

Le régime de soins dentaires gratuits pour enfants que M. Claude Castonguay, ministre des Affaires sociales du Québec, pensait mettre en application dès le 1er février, se verra vraisemblablement reporté plus tard dans l'année.

Même si cette législation fut passée l'an dernier pour ajouter les soins dentaires pour enfants au régime d'assurance-maladie, la législation elle-même

ne marquait que le début des négociations qui conduiraient à son application éventuelle.

Depuis juin dernier, l'Association des Chirugiens-Dentistes du Québec est en pourparlers avec le gouvernement. Ces discussions ont jusqu'ici porté sur la couverture des soins. Des deux côtés on a travaillé sur une liste de services spécifiques qui seront couverts par la Régie de l'Assurance-maladie du Québec.

Lorsque cette liste sera terminée, on négociera les honoraires que la Régie accordera pour chaque service spécifique rendu.

Bien que la nouvelle législation ne fasse aucunement mention de l'âge dans la couverture des soins dentaires, le ministère des Affaires sociales pense limiter l'âge d'accessibilité à ces soins gratuits à moins de huit ans au tout début.

## Chronique internationale

### Le Dr MacLean mène une étude dentaire pour CARE/MEDICO en Indonésie

Le Dr ainsi que Mme H. R. MacLean, d'Edmonton, ont terminé dernièrement une étude d'un mois sur les besoins dentaires à Solo en Indonésie au nom de CARE/MEDICO Canada.

Le Dr MacLean, ancien doyen de la Faculté dentaire de l'Université de l'Alberta a été président de l'Association Dentaire Canadienne en 1960-70. Margaret Berry MacLean est directrice de l'Ecole d'hygiène dentaire à l'Université de l'Alberta.

Le but premier de l'étude menée par le couple MacLean fut de déterminer à la fois les besoins et les possibilités d'ajouter un département dentaire au nouvel hôpital qui doit être érigé sous peu à Solo.

Lorsque ce projet fut mené à terme en Indonésie, les MacLean visitèrent l'Australie et la Nouvelle-Zélande avant de regagner le Canada.

### Les chirurgiens buccaux américains préparent une réunion à Boston en mai

"Le spectre moderne des infections et des inflammations buccales" tel sera le thème choisi lors du congrès de l'éducation permanente de la Société américaine des chirurgiens buccaux qui doit avoir lieu du 21 au 23 mai 1972 à Boston.

Le programme consiste en une série de quatre conférences clinicopathologiques qui couvriront les infections bac-

## Congrès national

### CP Air offre un voyage en Australie au cours d'un tirage au sort

CP Air offrira deux billets en classe économique pour Sydney, Australie, au cours d'un tirage qui aura lieu lors du congrès à Montréal.

Les gagnants de ces deux prix évalués à \$1,300 auront donc droit au transport gratuit lors du Congrès dentaire mondial qui doit se dérouler à Sydney du 15 au 20 juillet 1973.

CP Air pense aussi installer un kiosque au congrès de Montréal pour aider les délégués dans leurs reconfirmations ou leurs réservations de retour.

### Traduction simultanée

Le responsable du congrès, Murray Cornish, a annoncé qu'un service de traduction simultanée en anglais et en français serait disponible lors des délibérations du Bureau des Gouverneurs pendant le congrès national 1972 à Montréal. Au moins un membre de chaque comité consultatif sera également bilingue de façon à ce que chaque comité puisse poursuivre ses débats dans l'une ou l'autre des deux langues officielles. De plus les dentistes d'expression française ou anglaise sont invités à participer et à s'exprimer dans la langue de leur choix.



tériennes, les infections granulomateuses chroniques, les lésions vésiculaires aiguës et les infections qui présentent un intérêt tout spécial pour le chirurgien buccal. On a aussi prévu un programme de films scientifiques.

On fournira aux participants qui s'inscriront avant le 15 avril des résumés de cas, mais sans diagnostics, que l'on discutera lors de la conférence. Le diagnostic et le pronostic pour chaque cas seront donnés à la fin de la séance.

Les frais d'inscription qui comprennent deux petits-déjeuners et un banquet à l'hôtel Sheraton-Boston sont de \$75 pour les membres de la SACB et de l'Académie américaine de pathologie buccale, et de \$90 pour ceux qui n'en sont pas membres. On peut se procurer les programmes ainsi que les formules d'inscription en écrivant à la Société américaine des chirurgiens buccaux, 211 E Chicago Ave, Ill 60611, USA.

### Les Américains reconnaîtront les programmes de spécialités de l'ADC

Le Conseil de l'enseignement dentaire de l'Association Dentaire Américaine a voté en décembre dernier l'adoption d'un accord réciproque avec le Conseil de l'enseignement de l'Association Dentaire Canadienne sur la reconnaissance de programmes de spécialités dans des domaines reconnus par l'ADA et accrédités par l'ADC.

L'ADC est maintenant engagée dans un programme de reconnaissance des

spécialités et s'attend à ce que la première enquête soit terminée au printemps de cette année.

### La FDI lance un concours pour trouver un symbole international de l'art dentaire

La Fédération Dentaire Internationale a invité les membres de l'ADC à soumettre des dessins dans le but de trouver un symbole international de l'art dentaire. Tous les dessins doivent avoir comme thème "l'art dentaire, profession de la santé internationale".

Tous les dessins soumis doivent être en noir, blanc, et au maximum une autre couleur. Ils doivent par leur simplicité pouvoir être reproduits sur la papeterie, les affiches, publications, couvertures de livres et les écussons. Le motif doit être simple et dépourvu de toute connotation religieuse (Ste-Appolonie par exemple est un symbole inacceptable).

Six copies ou photographies de ce dessin doivent être envoyées avant le 1er avril à G. H. Leatherman, Directeur général, Fédération Dentaire Internationale, 64 Wimpole Street, London W1M8AL, England.

Le Comité exécutif de la FDI choisira, lors de sa réunion d'avril trois de ces dessins et les soumettra à l'Assemblée générale du XV Congrès dentaire mondial à Mexico en octobre. L'Assemblée générale choisira alors le meilleur dessin et attribuera un prix au gagnant. La FDI réservera les droits d'auteur au dessin choisi.

### Où l'usage devient la loi: Docteur X, Chirurgien-Dentiste

A la demande du Gouvernement français, le Parlement de la France sera, dans les jours prochains, appelé à discuter d'un projet de la loi portant réforme du Code de la Santé Publique. Des interprétations erronées ont été données de ce projet qu'il faut analyser succinctement, notamment les articles concernant la profession dentaire:

—Le projet de loi tend à "remplacer le diplôme d'Etat de chirurgien-dentiste par un doctorat d'Etat en chirurgie dentaire de manière à harmoniser, au regard du droit d'exercice, la situation des médecins et celle des chirurgiens-dentistes" (exposé des motifs) (art. 2 du projet).

—Il tend également à donner à la profession dentaire "une indépendance plus grande à l'égard du corps médical" (art. 9, art. 33 et 34).

—En ce qui concerne le droit de prescription, le projet précise que "les chirurgiens-dentistes peuvent prescrire tous les médicaments nécessaires à l'exercice de l'art dentaire." (Actuellement la possibilité de prescription est limitée à une liste relativement large, mais qui serait rapidement rendue caduque par les découvertes pharmacologiques.)

En résumé, si le Parlement français adopte le texte gouvernemental, le titre de "docteur" accordé jusqu'alors par le public aux chirurgiens-dentistes sera consacré par la loi, ce qui prouvera, une fois de plus, que le fait précède le droit.



Le 20 janvier la Société Dentaire de Québec était heureuse de recevoir la visite d'un de ses plus illustres membres, le président de l'Association Dentaire Canadienne, en la personne du Dr Louis Bernier. Accompagné du Dr W. G. McIntosh, directeur-exécutif de l'ADC, et de Me André Lévesque (à gauche), conseiller en assurance auprès du CDSPI, le Dr Louis Bernier témoignait sa confiance envers les buts de l'ADC et traçait les grandes lignes de sa politique durant son terme d'office. Le président de la Société Dentaire de Québec, le Dr J. L. Bertrand (à droite) lui remettait une plaque souvenir en témoignage de reconnaissance pour services rendus à la profession.



## Identification des cadavres par l'étude des dents

De récentes catastrophes—comme celle d'Aberfan au Pays de Galles, l'incendie du "5-7" à St-Laurent du Pont—et de nombreux accidents d'avions de ligne ont posé douloureusement le problème de l'identification des cadavres de nombreuses victimes rassemblées dans la mort.

L'intérêt de l'étude du schéma dentaire des victimes avait depuis longtemps attiré l'attention des spécialistes notamment depuis l'incendie du Bazar de la Charité en 1897 (Davenport) puis à la suite de la deuxième guerre mondiale: Keiser Nielsen (identification des résistants danois) et enfin à l'occasion d'accidents d'avion: Bonnafoux, chirurgien-dentiste à Ajaccio (catastrophe du Mont-Renoso) et l'équipe de l'institut médico-légal, notamment Derobert et Garlopieau (identification des déportés 1939-45 et accident du Paris-Rome).

Chez des victimes très traumatisées ou carbonisées, les dents persistent généralement et—sous réserve d'avoir des renseignements sur l'état antérieur—peuvent seules permettre une identification, parfois même à l'exclusion de tout autre procédé.

En l'absence de renseignements, notamment en cas de découvertes de corps isolés, l'examen dentaire permet souvent de déterminer le sexe, la race, parfois la profession ou les habitudes sociales et surtout l'âge à 10 p.c. près.

Il serait nécessaire de préparer des équipes d'enquêteurs spécialisées—comme cela existe en Scandinavie—pouvant intervenir rapidement en cas de catastrophe. L'absence d'identification d'un cadavre pose des problèmes moraux et juridiques graves; il serait donc logique d'utiliser les moyens existants pour faciliter les recherches.

## Les organismes dentaires

### Alpha Oméga demande la libération d'un dentiste juif de l'URSS

La fraternité dentaire internationale juive Alpha Oméga a demandé au gouvernement soviétique de permettre à un dentiste russe-juif de Leningrad d'émigrer en Israël.

Boris Azernikov fut condamné l'an dernier sous des chefs d'accusation "d'agitation et de propagande anti-soviétique" et "d'activité subversive et d'appartenance à une organisation anti-soviétique". La fraternité Alpha Oméga soutient qu'il fut arrêté pour possession d'un recueil de poèmes de Bialek, d'un calendrier hébreux et d'une copie d'une lettre protestant contre le refus



Jean Nadeau, de Montréal, a récemment été réélu pour un second mandat au poste de président de l'Association des Prosthodontistes du Québec. Sur la photo on peut voir le Dr Nadeau en compagnie de Jacques Fiset, secrétaire-trésorier, à gauche, et de Donald Kepron, vice-président, à droite.

d'accorder des visas permettant l'émigration des Juifs en Israël.

La fraternité a fait appel aux membres de la profession dentaire pour qu'ils expriment leur désapprobation à l'Ambassade soviétique.

### Les orthodontistes du Québec élisent le Dr Baril

Claude Baril, de Montréal, a récemment été nommé président de l'Association des Orthodontistes du Québec. Il succède à H. L. Levitt, de Montréal également.



Le docteur  
Claude Baril

M. D. Rennert, de Montréal, a été nommé au poste de vice-président. Quant à J. P. Couture, de Verdun, il occupe le rôle de secrétaire et L. L. Prosterman, de Montréal, celui de trésorier. De plus, Lucien Bossé de Dorval, a été nommé membre de l'exécutif de l'AOQ.

## Régime d'épargne- retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 31 janvier 1972:

*Fonds à revenu fixe* \$12.780;

*Fonds d'actions ordinaires* \$26.273.

L'avoir total (valeur marchande) du régime se montait à \$11,808,397.78.

Au cours du mois précédent, nous n'avons pas fait d'achats ni de ventes.

Pour de plus amples renseignements, veuillez écrire à: CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto 180, Ont.

## L'enseignement dentaire

### Le Collège royal donne les résultats des examens

Le Collège Royal des Dentistes du Canada a annoncé le nom des dentistes du Québec qui ont subi avec succès les derniers examens de septembre et de décembre.

G. L. Freedman, de Montréal, a réussi la première partie de l'examen de chirurgie buccale qui se déroulait le 13 septembre. Guy Maranda, de Québec, a passé avec succès la seconde partie de l'examen, les 3 et 4 décembre, lui aussi en chirurgie buccale.



## Services dentaires des Forces Canadiennes

### Promotion d'un officier dentiste

Une dépêche émanant des Quartiers généraux des Forces armées canadiennes a récemment annoncé la nomination du Maj. J. J. Y. Turcotte au rang de lieutenant-colonel. Diplômé en 1958 de l'Université de Montréal en chirurgie dentaire, le Lt-col Turcotte exerce au Doctors Hospital Medical Centre à Toronto, où il termine sa dernière année de résidence en chirurgie buccale.

### Trois cadets se distinguent

Trente cadets ont terminé leur stage de formation d'été pour 1971 à l'Ecole des services dentaires des Forces armées canadiennes, Base Borden, Ont.

Des récompenses furent décernées à trois cadets représentant chacune des trois périodes du programme de formation de l'officier-dentiste de ce service.

Pour la 3e période de ce stage de formation subventionnée, le Second Lt J. C. R. P. Larose s'est mérité la première place pendant que le Second Lt R. A. Hodge se méritait la première place pour la seconde période.

La récompense pour le meilleur candidat de la première période de ce stage de formation échet au Cadet R. B. Johnson. Tous les étudiants de la 1ère session ont reçu leur entraînement militaire à la Base Chilliwack des Forces armées canadiennes.

Au total 28 nouveaux étudiants ont été acceptés pour poursuivre ce stage de formation comme officier-dentiste pour 1971-72.

## L'économie

### Etude sur les mécaniciens dentaires de l'Ontario

Selon un article paru le 12 janvier dans le *Globe and Mail* de Toronto, un groupe de trois membres nommés par le Conseil de la Santé de l'Ontario étudiera le problème des mécaniciens dentaires. Ce Conseil à caractère consultatif sera responsable devant le ministre provincial de la santé.

Selon les termes de l'article, le but de cette étude est de "formuler des recommandations en rapport avec le rôle et la portée du travail des techniciens dentaires, recommandations qui devront être transmises au Comité des

ressources humaines. Le groupe entendra aussi les dentistes, les techniciens dentaires et autres groupes intéressés".

Après étude de ces recommandations, le Comité des ressources humaines sera chargé de les transmettre au Conseil de la santé.

Donna J. Hayley, avocat de Toronto sera la présidente de ce projet d'étude; les deux autres membres sont: C. M. Birkett, de Hamilton, directeur à la retraite d'une compagnie d'acier et W. D. Wilkins, directeur d'une imprimerie de Toronto.

Trois groupes similaires ont été nommés pour formuler des recommandations sur la portée du travail et les exigences académiques requises en chiropraxie, en chiropraxie et dans les services de santé mentale. On a demandé à ces groupes d'apporter leurs recommandations préliminaires d'ici le 29 février.

Ces quatre projets d'étude ainsi que d'autres, commandités par le Conseil de la santé de l'Ontario, ne sont en fait que l'aboutissement de ce qu'avait annoncé il y a un an Thomas Wells, alors Ministre de la santé de l'Ontario: la création d'un Bureau de normalisation des professions de la santé.

Le Conseil, grâce à ses comités, reconsidère les normes ainsi que les exigences académiques qui régissent au moins 50 professions de la santé.

Le Conseil a eu à faire face à une prolifération inutile des professions et exige des normes strictes ainsi que des programmes de formation conçus pour former les travailleurs nécessaires de la façon la plus économique.

### Tentative d'exclusion d'un médecin jugée illégale

Une tentative par trois médecins de St. Catharines, Ont, d'empêcher un autre confrère d'exercer dans un rayon de cinq milles du lieu où eux-mêmes pratiquaient a été déclarée illégale par les tribunaux.

A. N. Horwitz en a appelé à la Cour Suprême de l'Ontario pour briser le contrat qui le liait à trois autres médecins. Le Dr Horwitz, spécialiste en obstétrique et en gynécologie s'était décidé à travailler au Centre médical de St. Catharines, propriété appartenant aux médecins qui d'autre part lui garantissaient 60 p.c. de ses honoraires.

Lorsqu'il quitta cet emploi, les trois autres invoquèrent une clause de son contrat par laquelle le Dr Horwitz s'engageait à ne pas exercer sa spécialité dans un rayon de cinq milles de St-Catharines pendant cinq ans. Le Dr Horwitz demanda à la cour de le libérer de cette servitude.

Le Juge M. Donohue déclara que "dans l'intérêt public ce contrat restrictif ne pouvait être appliqué". De plus il fit remarquer que la profession

médicale détient déjà un monopole sur la santé des citoyens du Canada et que "étendre ce monopole serait préjudiciable à l'intérêt public".

### L'Ontario exigera l'éducation permanente pour renouveler la licence

Le Collège Royal des Chirurgiens-Dentistes de l'Ontario a décidé d'exiger l'éducation permanente obligatoire pour ses membres.

Selon cette nouvelle provision, seul un dentiste ayant suivi au moins 50 heures de ces cours de recyclage sur une période de trois ans pourra obtenir le renouvellement de sa licence de pratique en Ontario. Cette nouvelle exigence entre en vigueur le 1er janvier 1973.

## L'hygiène dentaire publique

### L'ADC "reconnait" deux dentifrices thérapeutiques

L'Association Dentaire Canadienne a reconnu comme ayant une valeur thérapeutique certaine deux dentifrices que les dentistes pourront désormais recommander à leurs patients, et ce dans le cadre d'un programme de prévention contre la carie dentaire. Il s'agit du *Crest* de Procter & Gamble et du *Colgate avec MFP* de la maison Colgate-Palmolive.

Cette annonce fait suite à la décision récente du Bureau des Gouverneurs d'indiquer sur les dentifrices la preuve de leur valeur thérapeutique, et ce pour le bien de la profession et du public. Cette identification est basée sur les rapports officiels du Conseil sur la thérapie dentaire de l'Association Dentaire Américaine ainsi que sur l'assurance écrite du fabricant que les produits mis en vente sous une même marque de commerce au Canada et aux Etats-Unis possèdent les mêmes composants actifs.

Pour satisfaire à la fois aux exigences de l'hygiène dentaire et des soins apportés par les dentistes, l'Association a aussi donné son accord à l'utilisation du commentaire suivant:

*"Crest s'est révélé un dentifrice préventif contre la carie dentaire et son emploi peut avoir une valeur importante lorsqu'on l'utilise dans le cadre d'un programme d'hygiène buccale exécuté avec application et de soins dentaires professionnels réguliers".*

*"Colgate avec MFP s'est révélé un dentifrice préventif contre la carie den-*



taire et son emploi peut avoir une valeur importante lorsqu'on l'utilise dans le cadre d'un programme d'hygiène buccale exécuté avec application et de soins dentaires professionnels réguliers".

La composition du *Crest* comporte 0.4 p.c. de fluorure stanneux, 39 p.c. de pyrophosphate de calcium, 10 p.c. de glycérine, 20 p.c. de sorbitol, 26.54 p.c. d'eau d'assaisonnement et de coloris, et 3.06 p.c. d'agents divers.

La composition du *Colgate avec MFP* comporte 0.76 p.c. de monofluorophosphate de sodium, 41.85 p.c. de métaphosphate de sodium insoluble, 17 p.c. de sorbitol, 10.03 p.c. de glycérine, 5 p.c. de phosphate de dicalcium anhydre, 19.09 p.c. d'eau, 2.05 p.c. de sarcosinate de sodium N-lauroyl et 4.2 p.c. d'agents divers.

## La recherche

### Céramique poreuse utilisée pour la greffe des os

Des scientifiques américains, commandités par l'Institut de recherche dentaire de l'armée américaine, ont mis au point une céramique poreuse, biodégradable, qui offre d'énormes possibilités comme solution de rechange aux greffes chirurgicales d'os que l'on pratiquait jusqu'ici. Après des études poussées sur les animaux, l'implantation du travertin de céramique dans l'emplacement de l'os qui devait être restauré a abouti à une reformation totale et parfaite de l'os en question.

Ce matériau poreux, obtenu à partir de formes diverses de phosphate de calcium, est livré en différents formats et peut être sculpté à la guise du chirurgien qui lui donne ainsi la forme désirée correspondant au défaut de l'os à restaurer. Jusqu'ici on s'est surtout intéressé à son utilisation dans la restauration de l'os maxillaire.

Après des centaines d'expériences sur des greffons animaux en laboratoire au Centre médical Walter Reed à Washington, les chercheurs ont découvert que le greffon en céramique poreuse est totalement remplacé par un os bien calcifié en quatre à six semaines.

Ils ont découvert aussi que l'os commence à se régénérer à travers le matériau poreux presque immédiatement après l'implantation, aussitôt que le sang et autres liquides organiques pénètrent la structure de céramique. Observés au microscope, les particules de céramique disparaissent complètement en six semaines et l'os est entièrement remodelé après deux à trois mois.

Ces hommes de science ont observé la présence de l'os cortical, spongieux

et de la moelle aux endroits précis où ces tissus se développent normalement. La céramique, composée surtout de calcium et de phosphore se dégradait complètement ne laissant aucun résidu étranger à l'endroit où le greffon était fait.

L'importance de ces résultats réside dans le fait que, notent-ils, le matériau de céramique est seulement temporaire: il sert de pont et aide le corps à reformer complètement un nouvel os. Lorsque la dégradation est accomplie, il ne reste que l'os du patient.

Les chercheurs ont aussi expérimenté le phosphate de calcium sous forme de poudre ou en grains pour restaurer de légères déformations d'os. Lorsque les particules sont insérées dans les vides de l'os, il se forme une sorte de coulis au contact du sang, et l'on obtient une "obturation" solide. Les résultats obtenus sont comparables à ceux de la céramique poreuse.

Les résultats de toutes ces expériences indiquent que l'on pourrait appliquer cette méthode de coulis pour favoriser la régénération d'un nouvel os chez les patients atteints de maladies périodentaires.

### Les obturations au fluorure peuvent réduire l'incidence de la carie

L'addition de fluorure aux obturations à l'amalgame peut augmenter la résistance d'une dent à la carie; voilà ce qu'a déclaré un expert en matériaux dentaires lors de la réunion scientifique de l'Association Dentaire Américaine en octobre dernier.

Mais avant de recommander l'utilisation clinique généralisée de ces amalgames au fluorure, on doit répondre à un certain nombre de questions, d'ajouter R. W. Phillips d'Indianapolis.

"On peut se demander par exemple si l'addition de fluorure altérera les propriétés de l'amalgame en réduisant sa résistance à la compression et à la corrosion. Ce qui nous manque le plus, c'est l'absence de preuves cliniques pour corroborer les résultats encourageants obtenus à partir de données en laboratoire sur l'effet topique du fluorure dans la réduction de la solubilité de l'émail à l'acide, a-t-il ajouté.

Lorsque les amalgames conventionnels sont utilisés, la carie se développe fréquemment sur les parties marginales de la restauration. Ceci semble bien être causé par une micro-fuite au bord de la cavité.

Le Dr Phillips a dit que les fluorures réagissent sur la structure adjacente de la dent pendant et après l'insertion de la restauration, réaction qui consiste en une diminution de la solubilité à l'acide.

### Nouveau lien pour les dents en plastique

Le département des recherches de l'Association Dentaire Américaine à Washington a annoncé la mise au point d'une nouvelle technique pour sceller les dents en plastique et les empêcher ainsi de sortir de la base de prothèse en plastique.

Les dents sont trempées dans une solution de deux parties égales de chlorure de méthylène et d'un monomère de méthacrylate de méthyl à polymérisation à froid pendant cinq minutes.

Les chercheurs R. L. Bowen, N. W. Rupp et G. C. Paffenbarger insistent sur le fait que cette nouvelle technique est beaucoup plus simple que la pratique courante qui consiste à tailler des rainures dans les dents pour leur assurer une rétention mécanique et à ensuite les mouiller avec un monomère.

Des pressions extrêmes appliquées en laboratoire ont fracturé les dents mais n'ont pas affecté le lien qui unit la dent à la base de la prothèse.

### Moelle de l'os illiaque utilisée pour restaurer l'os maxillaire

Des scientifiques de l'Université du Colorado ont mis au point une technique d'utilisation des implants de moelle prélevée sur l'os illiaque du patient pour restaurer l'os maxillaire endommagé à la suite des maladies périodentaires.

R. G. Shallhorn, de Denver, promoteur de cette nouvelle technique expérimentale a obtenu de nombreux succès avec ses patients. Après observation de tous les cas sur une période de plus de deux ans, la moelle, lorsque prélevée de l'os illiaque ou de la crête, démontra une régénération rapide aux endroits où l'on avait placé les implants.

Les greffons de l'os illiaque peuvent être utilisés dans le cabinet dentaire, de dire le Dr Shallhorn. Ils éliminent aussi le besoin d'avoir un donneur autogène lors de la chirurgie périodentaire. Au point de vue technique cette thérapie est beaucoup plus simple et le temps requis pour sa réalisation est aussi beaucoup plus court.

Le Dr Shallhorn dit que la moelle de l'os illiaque peut être prélevée dans le bureau d'un médecin ou dans une clinique externe. Après quoi on peut, soit la réfrigérer si l'implant doit être retardé jusqu'à concurrence d'une semaine, soit la congeler si l'opération ne doit être réalisée que dans quelques mois.

Dans quelques cas, la moelle est prélevée directement de l'os illiaque du patient dans le cabinet dentaire et implantée immédiatement dans l'os maxillaire.



## Analgésie relative par inhalation de protoxyde d'azote et d'oxygène

**Jacques Monette, DDS**  
**Montréal**

*Voici un bref exposé de l'analgésie relative, ses avantages, ses indications et contre-indications, sa définition, ses applications en dentisterie; expérience personnelle de l'auteur.*

*The author describes the application of nitrous oxide relative analgesia and his personal experience with this method of pain control.*

On entend de plus en plus parler d'analgésie relative, aux Etats-Unis surtout, au Canada et dans le monde entier. Certains dentistes sont émerveillés et enchantés par ce moyen qui leur permet de vivre dans leur pratique des expériences extraordinaires. D'autres, par contre, ne veulent pas en entendre parler par peur du nouveau ou hésitent à s'en servir après s'être renseignés par peur des conséquences possibles. Après avoir employé l'analgésie depuis déjà un an et demi avec beaucoup de succès, et donné plusieurs conférences sur le sujet, je désire par cet article donner au lecteur une idée de ce qu'est l'analgésie et partager avec lui mon expérience personnelle dans ce domaine.

Cette nouvelle vague de l'analgésie relative vient des Etats-Unis. Elle a commencé vraiment dans les années quarante. Plusieurs expériences avaient été faites auparavant, mais elles avaient été suivies d'un manque d'intérêt quasi total dû tant aux gaz impurs et aux appareils mal calibrés qu'au but que se fixait les dentistes voulant éliminer d'abord la douleur.<sup>1</sup>

### Avantages de l'analgésie relative

Après l'expérience acquise avec l'analgésie, voici les avantages que j'ai remarqués lors de son utilisation.

Pour le dentiste d'abord; le patient est très coopératif, ce qui entraîne une efficacité accrue du praticien. Le patient est calme, ne crache jamais grâce à la succion rapide, ne parle pas, ne bouge pas. L'analgésie réduit le stress physique et mental. Il est plus facile de faire accepter au patient un plan de traitement après que ce dernier eut expérimenté l'euphorie et la disparition de sa peur des procédures dentaires. L'analgésie permet de faire de la meilleure dentisterie, car le patient ignore complètement la douleur possible et les moyens employés (digue, svédoptère, pompe à salive, injections, etc.) et parce qu'il est amnésié, ne se souvenant que rarement d'une mauvaise expérience.



Pour le patient, les avantages sont également énormes. Lorsqu'il vient vous voir, le patient s'attend à se faire traiter de la façon la plus agréable possible et avec le moins de traumatisme. Il s'attend donc à ce qu'on élimine son appréhension et sa peur des procédures qu'il va subir. Avec l'analgésie le praticien peut facilement y arriver. D'abord la peur est éliminée dans 99 p.c. des cas et la douleur est diminuée considérablement dans plusieurs cas en élevant son seuil. L'analgésie élimine l'anticipation des désagréments causés par certaines procédures, surtout les injections. Lorsqu'on anesthésie localement un patient, il se crispe instinctivement et souvent s'agrippe aux bras de la chaise. Sous analgésie, rien de tout cela se produit. Le dentiste peut par exemple injecter un enfant comme il le veut; l'enfant se lèvera de la chaise avec un grand sourire en disant qu'il a passé de très bons moments. Sous analgésie la durée des rendez-vous n'est pas importante pour la simple raison que le patient n'a pas la notion du temps. Un rendez-vous de trois heures apparaîtra comme un rendez-vous d'une demi-heure.<sup>2</sup>

“L’analgésie relative par inhalation de protoxyde d’azote et d’oxygène est un état psychologique altéré, induit chimiquement, qui élimine la peur et la douleur dans la majorité des interventions dentaires. Un bon analgésique comme le protoxyde d’azote est une substance qui, non seulement élève le seuil de la réaction à la douleur sans perte de conscience, mais modifie l’attitude mentale et émotive du patient durant l’intervention”.<sup>1</sup>

Le Tableau 1 démontre où se situe l'analgésie relative.<sup>1</sup> Si l'on examine bien le tableau, on se rend compte qu'en analgésie relative la phase d'anesthésie est bien loin d'être atteinte car il faut d'abord franchir le plan trois de l'analgésie, puis la phase d'exci-

Soulignons ici que l'utilisation de l'anesthésie générale, avec tout ce que cela comporte d'appréhension, de prémédications, d'instructions au patient, de période de récupération et de préparatifs spéciaux, est grandement diminuée et même dans certains cas complètement éliminée à moins qu'il ne s'agisse de grande chirurgie. Selon mon expérience, rares sont les cas où l'analgésie n'a pas réussi et où un patient a dû être référé pour anesthésie générale.

Mentionnons tout simplement que l'analgésie relative peut être utilisée pour tout ce qu'un dentiste exécute de façon courante, exception faite pour la chirurgie majeure: en dentisterie opératoire, en périodontie, en prothèse complète et partielle, en orthodontie, en endodontie, etc. Dans tous ces domaines l'analgésie facilite le travail tant pour le patient que pour le dentiste.

Faisons d'abord une brève énumération des indications:<sup>1</sup> un patient qui a peur des soins dentaires; celui qui refuse l'anesthésie locale et générale; les cas de choc anaphylactique à l'anesthésie locale; le patient chez qui l'anesthésie locale ne prend pas (on sait que la cause est souvent du côté nerveux et psychique); le patient facilement nauséeux; celui qui ne peut tolérer de longues séances; les patients avec conditions cardiaques de toutes sortes car ils sont relaxés; les patients souffrant d'asthme car ils respirent encore mieux par l'appareil puisque la pression des gaz dans les poumons est plus forte que lorsqu'il s'agit de l'air normal et le supplément d'oxygène est supérieur à celui de l'air; les diabétiques, les hypotendus et les hypertendus (c'est un bien pour ces derniers car étant relaxés leur tension diminue); les épileptiques qui ont moins de chances de crise, les retardés mentaux, mongols, etc.

Il y a quatre contre-indications importantes: (1) le rhume ordinaire, d'abord parce que le patient a de la difficulté à respirer par son nez, et pour ne pas pousser plus loin l'infection nasale ou pharyngée, car les

| Phase 1                                                                                                                                                                                                                                                                                   |        |        | Phase 2    | Phase 3                                                                                                                                                                                                                                                                                                                       | Phase 4               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| Plan 1                                                                                                                                                                                                                                                                                    | Plan 2 | Plan 3 | Excitation | Anesthésie chirurgicale                                                                                                                                                                                                                                                                                                       | Paralyse respiratoire |
| <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <math>\longleftrightarrow</math><br/> Analgésie relative </div> <div style="text-align: center;"> <math>\longleftrightarrow</math><br/> Analgésie totale </div> </div> |        |        |            | <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">Plan 1</div> <div style="text-align: center;">Plan 2</div> </div> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">Plan 3</div> <div style="text-align: center;">Plan 4</div> </div> |                       |



gaz entrent sous pression; (2) la tuberculose et autres troubles pulmonaires, à cause de la mauvaise condition des poumons et des voies respiratoires; (3) les patients sous soins psychiatriques car ils font souvent de mauvaises expériences sous analgésie (il vaut mieux consulter le psychiatre traitant); (4) la sclérose multiple, communément appelée sclérose en plaque, à cause du mauvais fonctionnement des muscles respiratoires par manque de synapse suffisant et par manque d'action des neurones moteurs. (Certains prétendent que ces derniers patients peuvent recevoir l'analgésie).

## Légalité de l'analgésie

Pour ceux qui s'interrogent sur la légalité de l'analgésie, sur les complications possibles, sur le coût des appareils, voici quelques explications. Tout d'abord soulignons que l'analgésie relative employée par un dentiste muni d'un certificat attestant qu'il a suivi un cours reconnu sur le sujet est tout à fait légale. Comment 20,000 à 25,000 dentistes aux Etats-Unis pourraient-ils l'employer si ce n'était pas légal? Les compagnies d'assurances couvrent le dentiste exactement comme auparavant et aux mêmes taux.

## Complications possibles et coût

Peut-il y avoir des complications avec l'analgésie? Oui, il peut y en avoir comme cela peut arriver à tout dentiste ne se servant pas de l'analgésie. Tous les dentistes devraient être prêts à faire face aux situations d'urgence pouvant survenir dans son bureau. Pour le dentiste qui, ayant suivi un bon cours, se sert correctement de son appareil, les complications les plus importantes qui peuvent survenir sont les nausées et les vomissements. On n'a jamais rapporté de cas de mortalité due spécifiquement à l'analgésie. Des cas de laryngospasmes ont été rapportés. Donc tout dentiste devrait être capable de faire face à cette complication très rare, mais parfois possible.

Combien coûte un appareil d'analgésie, l'installation comprise? Tout dépend du genre d'appareil et d'installation que l'on désire. Cela est cependant bien peu quand on pense que l'appareil se paie vite par la popularité qui entoure rapidement le dentiste se servant de l'analgésie et par le fait que le dentiste travaillera probablement quelques années de plus tant l'analgésie diminuera son stress et sa fatigue, augmentant ainsi sa productivité.

Pour terminer, j'aimerais citer quelques phrases tirées d'un exposé donné par le docteur Monheim, professeur d'anesthésiologie de réputation mondiale, devant la Société Américaine d'Analgésie en décembre 1970:<sup>3</sup>

"Tout dentiste consciencieux désirant utiliser une telle technique (sédalgésie ou analgésie relative) possède l'habileté et les connaissances scientifiques pour considérer l'emploi de ce type de contrôle de la douleur. Les connaissances acquises dans une école dentaire et un entraînement ou un travail avec une autre personne se servant de cette méthode de contrôle de la douleur devrait suffire . . . .

"Pour l'avenir de la sédalgésie (analgésie relative) en dentisterie, son usage devrait s'accroître grandement. Toute école dentaire devrait enseigner les techniques de la sédalgésie afin que les étudiants comprennent bien ses indications et contre-indications, ses avantages et ses désavantages avant de quitter la faculté. L'analgésie locale et régionale est présentement et sera dans le futur la base solide de la sédalgésie. Les autres médicaments devraient être employés pour réduire l'anxiété et l'appréhension et par moments pour élever le seuil de la douleur et augmenter le potentiel de l'anesthésie locale".

## Conclusion

J'espère que ces quelques propos sur l'analgésie relative auront réussi au moins à intéresser les dentistes au sujet et surtout qu'ils les motiveront à se renseigner davantage. Voici un volume de base qui est recommandé à tous les intéressés: *Relative Analgesia in Dental Practice* du docteur Harry Langa de New York édité par W. B. Saunders (283 pages) 1968. Vous saurez y trouver la plupart des réponses à plusieurs de vos questions.

Le docteur Monette est clinicien en diagnostic à la Faculté de Chirurgie Dentaire de l'Université de Montréal et vice-président du Club d'Analgésie du Québec. Son adresse est: 2157 est, rue Fleury, Montréal.

1. Langa, Harry. Relative analgesia in dental practice; inhalation analgesia with nitrous oxide. With a section on relative analgesia for the handicapped child by Harold Diner. Philadelphia, Saunders, 1968.
2. Fordham, K.C. Communication personnelle; cours d'analgésie. Montréal, 28-29 mai 1971.
3. Monheim, L.M. Analgesia in dentistry now and in the future. *Anesth Progr* 18:100, 1971.

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*Clarification* — An item in the February issue of the Journal (p 57) may have implied that the Royal College of Dental Surgeons of Ontario will require 50 hours of continuing education every three years for renewal of a licence to practise in Ontario. The measure has been approved in principle but the details are not yet finalized. Ontario dentists will receive adequate notice before such a requirement goes into effect.



## The role of the dentist in the management of patients irradiated for oral cancer

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*Dental treatment for patients who are being given radiotherapy for oral cancer is frequently painful and awkward. General practitioners will probably encounter an increasing number of patients suffering from oral cancer and it is therefore important that they know how to treat the patient to ensure minimum discomfort. This paper describes a number of side effects and complications associated with radiotherapy and suggests various methods of dental treatment which will perhaps alleviate the situation or at least prevent it from growing more acute.*

*Les patients subissant de la radiothérapie pour le cancer de la bouche trouvent douloureux et pénibles les traitements dentaires qu'ils reçoivent. À l'avenir les omnipraticiens auront à soigner un nombre grandissant de patients souffrant du cancer de la bouche et il est donc important qu'ils sachent comment traiter ces patients pour leur assurer un minimum de douleur. Cet article décrit un certain nombre de complications associées à la radiothérapie, et suggère différentes méthodes de traitement dentaire qui peut-être rendront la situation moins pénible, ou du moins l'empêcheront de s'aggraver.*

Dentists are encountering more patients who are about to receive or have received radiotherapy for cancer of the head and neck. During treatment damage to the surrounding normal tissue is unavoidable but should be recognized and controlled to produce the most favourable results. This paper describes the various side effects and complicating factors that can arise and discusses methods a dentist can employ to prevent or minimize such hazards before, during and after treatment.

Since the introduction of cobalt-60 therapy (8-50 million electron volts), radiotherapy has frequently achieved five year survival rates equal to those of surgical procedures but without the resultant disfigurements.<sup>1</sup> Although this form of irradiation can deliver cancerocidal doses with fewer complications than was previously possible with lower voltage x-ray therapy (150-400 kVp), there can still be serious complications. These include interruptions in the delivery of treatment, unnecessary pain or the loss of teeth or even the mandible after treatment has ended.<sup>2, 3</sup> The necessary care to control the associated oral problems is already an established practice for the dentist. Since nearly all such cancer patients are ambulatory, this supportive care can be administered in a dental office as well as a hospital dental department if periodic communication with the radiotherapist is maintained. To undertake this care, the dentist must be able to recognize and understand the number of conditions associated with the administration of radiotherapy to the head and neck area.

### Conditions associated with radiation treatment

**Epidermitis**—The skin of the face and neck quickly reacts to a high dose of radiation passing through it. The intensity of the reaction varies with the fractionation and protraction of the total dose, the number of portals being used, the collimation of the beam and



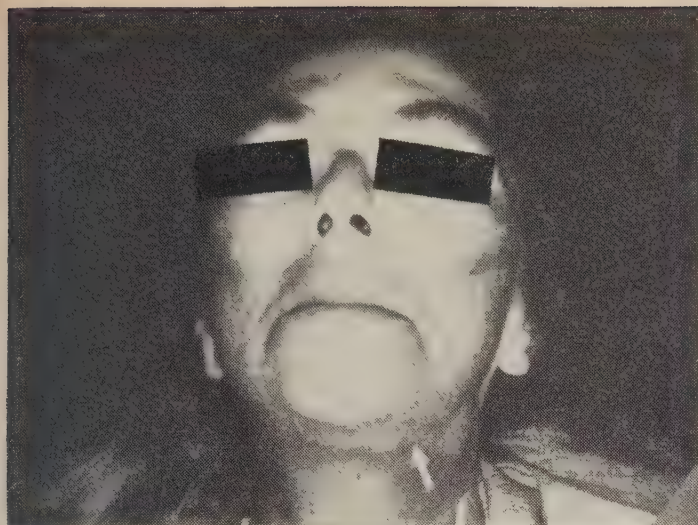


Fig 1 The patient had a large squamous cell carcinoma of the tongue. A sharp line (arrow) outlines the area of the skin traversed by the beam producing an epidermitis during treatment and permanent changes after treatment.

its angulation through the skin. The initial reaction is manifested as an area of erythema resembling a sun-burn. The area within the beam gradually becomes very dry and scaly. A sharp line of demarcation develops between this area and the immediate surrounding tissue which becomes deeply tanned (Fig 1). In most cases there is permanent loss of both hair and sweat glands within the area of the beam. The skin



Fig 2 An area of mucositis exhibiting the raised, white patches of oedematous and necrotic mucosa with several small areas of ulceration.

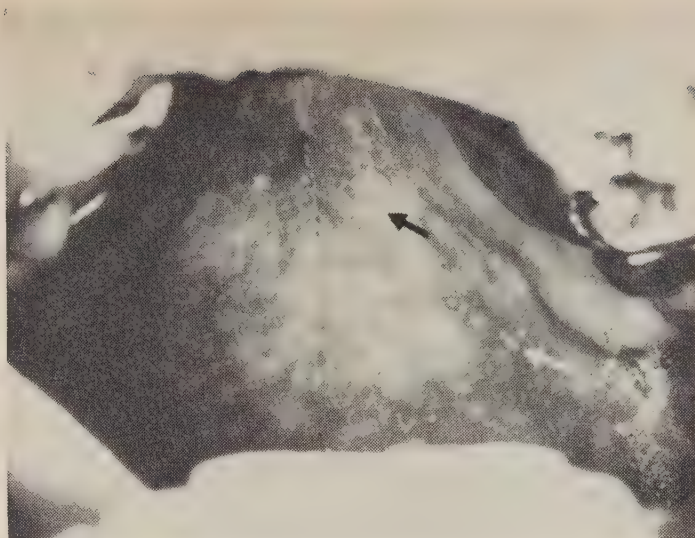


Fig 3 An area of the palate in a patient wearing a partial denture and receiving radiotherapy. Note the white plaques (white arrow) and ulcerations (black arrow) of moniliasis.

remains permanently thin and smooth, and parts of the underlying blood vessels are frequently visible through the surface.

*Perlèche*—When the portal areas involve the middle third of the face, the atrophic changes in the epithelium are intensified, particularly in the commissural areas of the mouth. The angular areas often develop deep fissures and sores, making eating difficult and any intra-oral procedures very painful. Without adequate care, these areas often become secondarily infected by *Candida albicans*. In some cases after completion of treatment the affected area undergoes sufficient scarring to diminish the extent to which the mouth can be opened.

*Mucositis*—This reaction is perhaps the most troublesome side effect encountered during treatment. The onset, intensity and duration of the reaction of the oral mucosa to irradiation varies according to the individual. The variation is partly due to the fractionation and protraction of the dose, the angulation of the beam as it passes through the mucosa, and the location of the lesion. It is also influenced by the patient's oral hygiene.

The mucosa becomes erythematous with deposits of fibrin on the surface (Fig 2). Since the oral mucosa is subject to frequent minor trauma, areas of erosion with eventual ulceration develop. In patients with poor oral hygiene and extensive caries, the problem is intensified by the increased irritation and the availability of potential pathogens. The soft tissues are so sensitive that the patient is reluctant to make any attempt to improve his oral hygiene by brushing, using tooth pastes or even mouthwashes. The situation is aggravated if the patient switches to a soft starchy diet without making any effort to maintain good oral hygiene. During this period the caries rate is greatly increased and, even more important, the lack of adequate nutrition may cause some degree of debilitation.<sup>4</sup>



The first signs of mucositis usually appear after approximately 1,000R have been delivered, usually after the first week of treatment. The intensity of the reaction augments as the dose is increased to the full 6-7,000R and may persist for two to three weeks after the completion of treatment. In the accumulated range of approximately 3,000R the patient may notice a loss of taste sensation. Later in the treatment, difficulty in speaking and swallowing may develop due to the extension of the mucositis to the pharyngeal area. These difficulties may be aggravated by inadequate function of the mucinous glands in the pharyngeal area.

**Moniliasis**—Moniliasis is occasionally encountered in patients receiving radiotherapy in the oral area. The symptoms of this type of fungal infection are a burning sensation with dryness and tenderness of the mucosa.

The clinical findings may vary. Acute moniliasis appears as loose greyish-white plaques with surrounding zones of erythema (Fig 3). In the more chronic form, the white plaques are not always found; instead, the oral tissues are fiery red with occasional areas of superficial ulceration. Frequently, the corners of the mouth develop crusted fissures.

Oral moniliasis may be the result of several interacting predisposing conditions such as the lack of oral hygiene worsened by the mucositis, the debilitated state of the patient, alteration of the normal oral flora by radiation and, in some cases, the administration of large doses of antibiotics that are occasionally necessary during treatment.

**Hairy tongue**—Occasionally patients will develop varying degrees of "hairy tongue" (Fig 4). The causes for the overgrowth of the filiform papillae on the dorsum of the tongue are unknown. It often appears in mouths with poor oral hygiene or where there is a superimposed monilial infection, a situation frequently found in patients receiving oral radiotherapy. Apart from its unappealing appearance, the condition seldom causes any real distress.

**Xerostomia**—The passage of the beam through the salivary glands functionally damages the glandular tissue. The extent and duration of this alteration in function depends upon the number of acini destroyed and the regenerative capacity of the remaining glandular tissue.

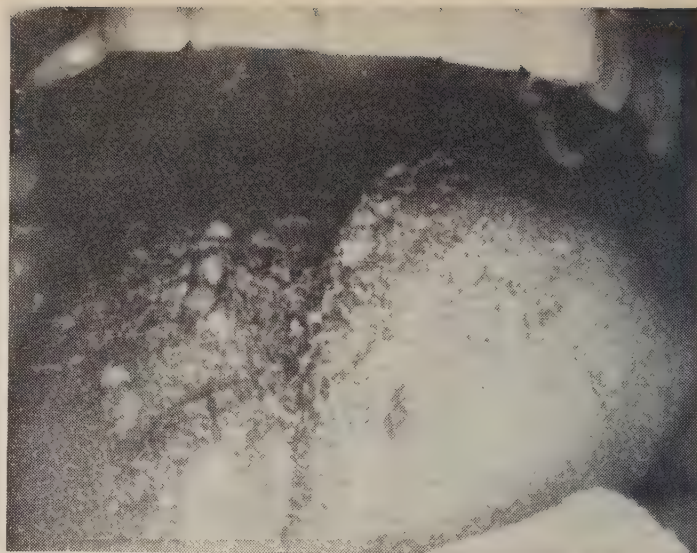


Fig 4 A hairy tongue in a patient receiving radiotherapy.

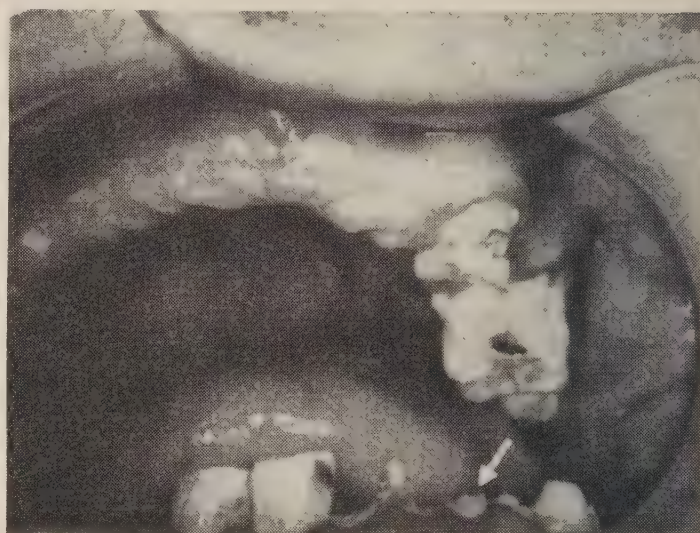


Fig 5 Several lower anterior teeth have been amputated at the cervical area of the crowns (white arrow) in a patient who had radiotherapy several years previously without taking measures to cope with this type of caries activity.

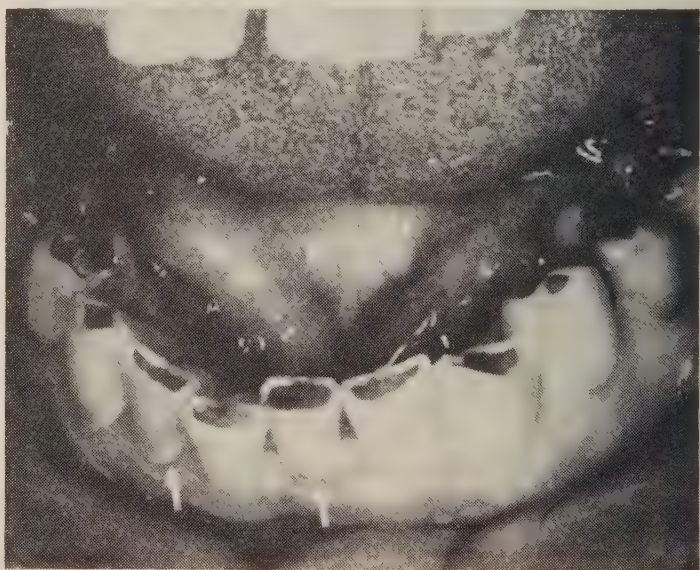


Fig 6 Dentine exposed by attrition and exhibiting the brown discoloration associated with the softening that extends deep into the tooth. Cervical alterations are also seen clinically on some of the teeth (arrows) and can be seen radiologically in Figure 7. This patient received radiotherapy less than a year previously.



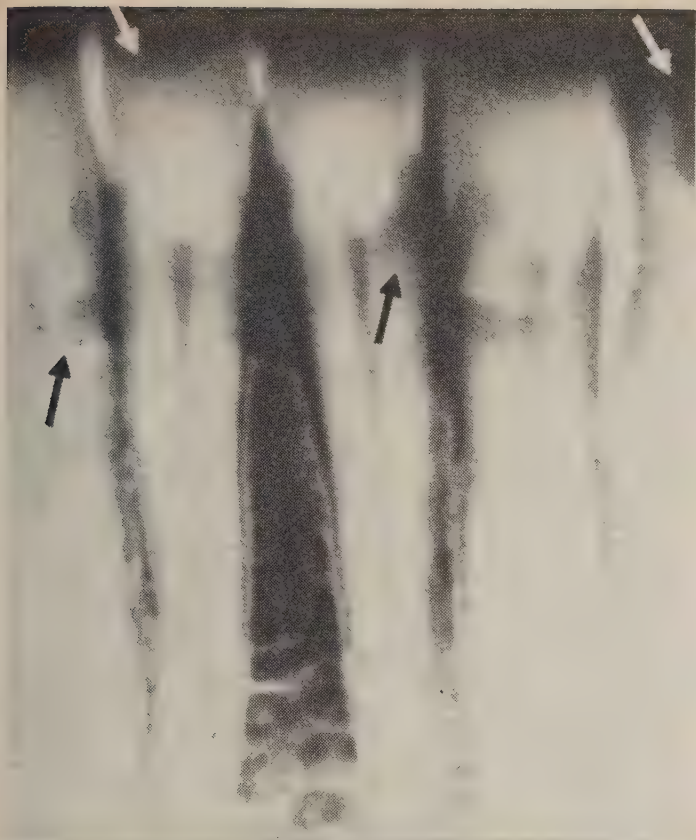


Fig 7 Radiograph of lower anterior teeth of the patient in Figure 6 illustrating the radiolucencies in the incisal (white arrows) and cervical (black arrows) areas.

In some cases the portals are situated over both the parotid and the submandibular glands, which causes severe xerostomia. Dry foods become difficult to eat and by absorbing the remaining saliva intensify the affliction. The lack of saliva in turn makes speech difficult and uncomfortable. It is also regarded as one of the main contributing factors in the development of accelerated caries activity found in these patients.<sup>4-6</sup>

**Radiation caries**—A distinct type of rampant caries often occurs after radiation therapy in adults<sup>7</sup> whether or not the teeth are located within the collimation of the beam. The severity of involvement varies with the extent to which the major salivary glands are involved.<sup>6</sup> Lesions develop in parts of the teeth that are normally bathed in saliva and relatively immune to caries. The most frequently affected surfaces are the buccal and lingual cervical thirds of the crowns and the incisal edges and peaks of cusps previously affected by attrition. The proximal and fissure areas usually become involved much later (Fig 5-7). The lesions begin as white opaque areas on the buccal and lingual surfaces that quickly flake to reveal a very soft demineralized dentine. These areas gradually encircle the tooth and frequently amputate the crowns. Any areas of exposed dentine in the incisal areas resulting from attrition become brown and soft when tested with an explorer. The alteration of the exposed dentine extends well into the tooth and may eventually involve the pulp chamber.

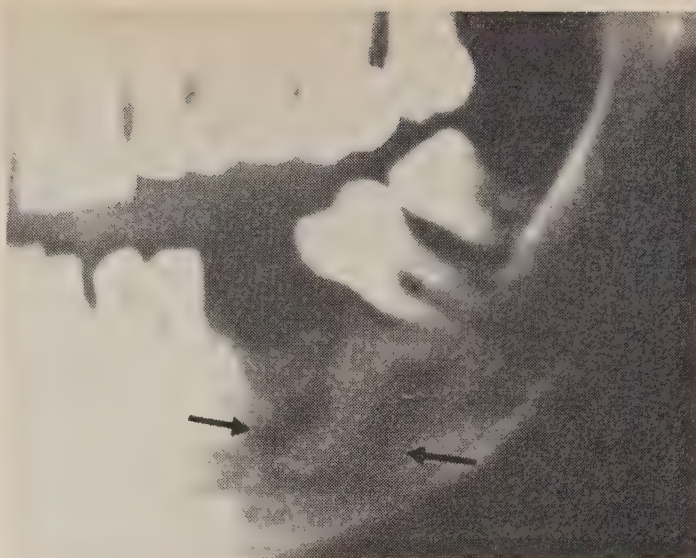


Fig 8 An area of osteoradionecrosis is progressing where a tooth was extracted after the patient received radiotherapy for a skin lesion overlying the mandible. A radiolucent zone surrounds an island of bone which will eventually be exfoliated (black arrows).

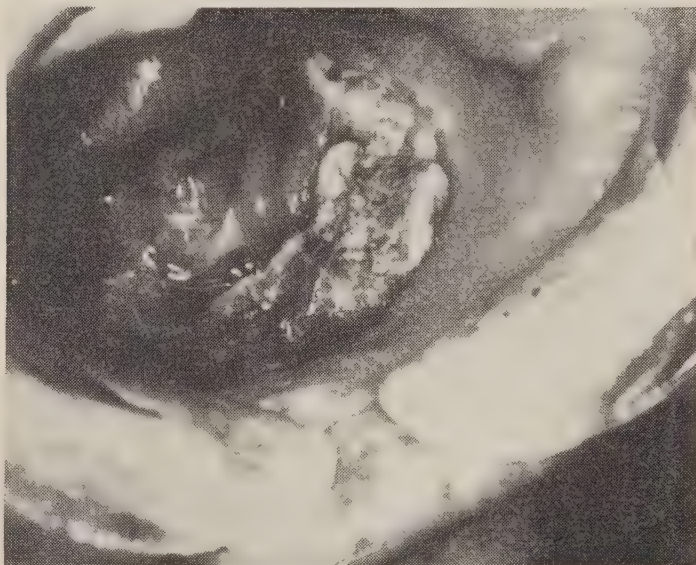


Fig 9 A piece of devitalized bone being exfoliated in a large area of osteoradionecrosis in an edentulous mandible that was previously subjected to radiation during treatment for cancer. The patient may now have to surgically lose part or all of the body of the mandible to relieve pain and stop the spread of infection.

**Periodontitis**—Any pre-existing periodontal disease appears clinically to intensify during and after therapy and becomes less responsive to normal prophylactic and curettage procedures. This remains a clinical impression and has not yet been studied sufficiently to allow further amplification.

**Osteoradionecrosis**—Probably the most serious, but less commonly found, complication following radiotherapy to the oral cavity is the development of osteoradionecrosis.<sup>8-10</sup> This condition is essentially a chronic osteomyelitis in which the cells of the bone have been



damaged by the radiation. In addition, the circulation within the bone that is necessary for its nutrition and resistance to infection is impaired by damage to the endothelial cells with a resulting sclerosis of the vessels.<sup>11</sup> As a consequence, any alveolar remodelling will cease shortly after therapy begins, particularly if extractions are undertaken immediately before radiotherapy. In such cases the sharp outlines of the socket margins and projecting spicules of bone will remain. Even with longer intervals between extraction and the initiation of therapy the sockets will heal more slowly and perhaps incompletely unless extensive alveoloplasty has been performed. The alveoloplasty must be extensive enough to allow complete soft tissue closure. Bone should never remain exposed to the oral environment. It is also preferable to remove any prominent areas of bone that have thin overlying soft tissue such as the cuspid eminences and sharp mylohyoid ridges. These areas may later be traumatized by a prosthetic appliance, a laryngoscope or intubation apparatus during the administration of a general anaesthetic.

Osteoradionecrosis is usually only found in the mandible since the maxilla is composed of less dense bone and has a more adequate blood supply. For the mandible to become predisposed, much of its area must be contained within the direct beam for the duration of therapy. The extent of bone damage will not be immediately apparent but may only be revealed in the months or years following therapy. Osteoradionecrosis only develops in bone exposed to a source of infection such as an ulceration on the alveolar ridge, a deep periodontal pocket, a periapical abscess, an area of pericoronitis or an open socket resulting from an extraction. Unless the patient experiences pain, the process becomes quite advanced before it is apparent clinically or even radiographically. Lesions progress by forming islands of devitalized bone that can occasionally be observed and

even moved if an opening through the mucosa is present (Fig 8). These sequestra may eventually be removed or may exfoliate, leaving a cavity in the bone but eventually an adjacent area of bone will usually undergo the same process producing an even larger defect.

Systemic antibiotics seem to have a limited effect due to impaired circulation within the bone; so treatment is usually empirical, consisting of constant irrigation of the bony cavity to keep it free of infection in the hope that the walls may epithelialize. In some cases very large areas of the mandible may be destroyed by the process (Fig 9) or large sections may have to be removed surgically to treat the condition.

Not all of the various conditions will necessarily take place in all patients and the extent and intensity of each will vary from individual to individual. It should be pointed out that osteoradionecrosis is less likely to happen if the correct pre- and postoperative procedures are observed. To prevent some of the complications from developing and to manage the ones that do appear, the dentist should see the patient before therapy is initiated, at least weekly during the period of therapy and first monthly and then quarterly after therapy is completed.<sup>4</sup>

#### Pretreatment procedure

A complete oral examination should be performed with special attention given to obtaining a good panoramic radiograph and full mouth periapical and bite-wing radiographs. All soft tissues should be examined for any inflammatory lesions or ulcerations. One should also note the presence of any bony projections or ridges with a thin covering of mucosa that may be easily traumatized. The status of the restorations and the extent of all carious lesions must be recorded. The



Fig 10 The post-treatment appearance of a patient who had a squamous cell carcinoma on the ventral surface of the tongue treated by radiotherapy. He has only a small scar and no loss of function. Surgical procedures would have necessitated removal of most or maybe all of the tongue and possibly part of the floor of the mouth.

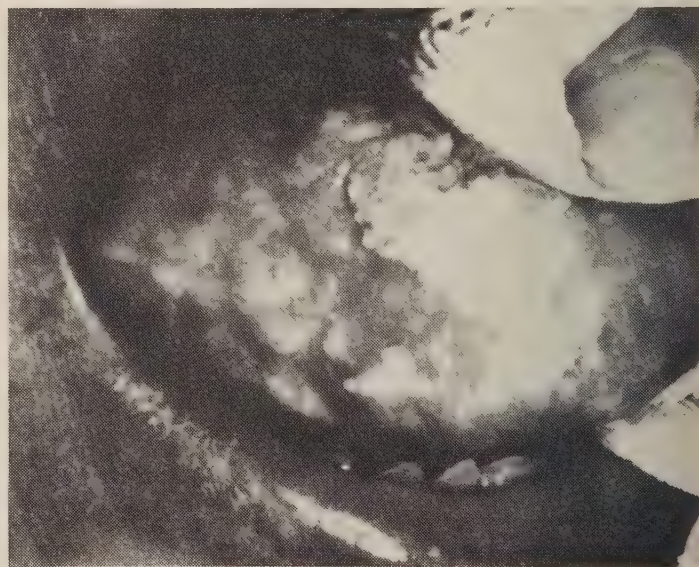


Fig 11 A squamous cell carcinoma developing adjacent to an area on the lateral border of the tongue previously treated by radiotherapy. This may represent a recurrence of the former lesion or an adjacent area undergoing malignant change.



radiographs should be studied for the presence of any periapical infection, the extent of bone loss from periodontal disease and the presence of any other intra-osseous lesion or disturbance. One should then decide which teeth can be restored to health by conservative periodontal and restorative procedures and whether the patient can maintain the level of oral hygiene necessary for their maintenance. The dentist and patient are committed to retain the teeth not extracted at this time for at least one to two years after therapy and in some cases for the rest of the patient's life because of the high risk of development of osteoradionecrosis if extractions are undertaken after radiotherapy is administered to the area. The teeth to be retained must be capable of being restored without risking severe pulpal damage, and rendered to periodontal health without extensive periodontal treatment.

During the pretreatment appointments prosthetic appliances should be withdrawn from the patient to facilitate optimum oral hygiene and to remove causes of irritation which would intensify a mucositis. In addition, all sharp edges and cusps of remaining teeth should be made smooth. Extractions must be carried out immediately along with an extensive alveoloplasty of the area. During the same appointment any bony prominence may be removed and the resulting flaps carefully sutured. Seven to 10 days should be allowed for the sites to heal sufficiently before radiotherapy begins. To prevent any further delay in treatment, the number of extractions should be kept to a minimum in any one quadrant and removal of any intra-osseous impactions should be avoided. In many cases the dental treatment has to be abbreviated to prevent any prolonged delay in the initiation of therapy. A consultation with the radiotherapist is usually necessary at this point.

The patient should be thoroughly instructed in the oral changes that will take place during and after therapy. This is not only reassuring to the patient but may be necessary to motivate some individuals to follow the tedious regime of prophylactic measures that must start before treatment and continue during and after treatment. This regime consists of the following:<sup>1</sup>

(a) Scaling and polishing during each dental visit with a 3 per cent solution of sodium fluoride to dampen the pumice.

(b) Toothbrushing after every meal and at bedtime.

(c) Oral lavage after every brushing. This is accomplished by adding half a teaspoon of salt and one teaspoon of baking soda to a quart of warm water. The solution is contained in a plastic bag. A length of tubing leads from the bottom of the bag and has an applicator tip with a 2mm opening at one end for directing the flow. The bag is held at head level and the flow is directed to all areas of the oral cavity until all of the solution has been used. (At the University of Michigan a disposable enema unit is used.)

(d) Once a day, usually after an oral lavage, the patient applies a fluoride gel to the teeth by means of an individually fabricated carrier. The application takes three to five minutes.

These preventive measures, if carried out thoroughly, improve gingival health, diminish caries, decrease the incidence of moniliasis, reduce the severity of the

mucositis and increase patient comfort during and after therapy.

### Procedure during treatment

The dentist should help to maintain the level of oral hygiene achieved by the patient.<sup>9</sup> This becomes more difficult as the saliva diminishes and the intensity of the mucositis increases. Most patients should probably be seen at least once a week by the second week of therapy and with the same frequency thereafter until a couple of weeks after therapy has ceased. Subsequently the patient may only have to be seen monthly.

During these appointments the dentist should check the home progress and supply more of the solutions or materials if necessary. A thorough scaling and polishing should be given at each appointment. The dentist may also have to advise the patient to increase the frequency of oral lavages as the mucosa becomes increasingly sensitive to brushing, the tooth paste or the fluoride. If moniliasis appears, it can be controlled with nystatin, a mycostatic agent specific for *Candida albicans*. Nystatin is available in solution with a dropper and is administered by holding several drops in the mouth for a few minutes and then swallowing.

Occasionally pain and dysphagia may occur during eating and may intensify if severe xerostomia also develops. Eating can be made more comfortable if before each meal the patient holds a teaspoonful of a viscous topical anaesthetic agent in the mouth for a while before swallowing slowly. The difficulties encountered during eating caused by the lack of saliva can be eased by giving the patient a diet that does not contain any dry or bulky foods or fruits, spicy foods and hot liquids. In addition, he should be instructed to avoid alcohol and tobacco.

Many of the attempts to control the general discomfort associated with dryness of the mouth have had varying degrees of success. Some patients keep a bottle of water with them at all times and constantly sip its contents. Solutions of various saliva replacement agents such as methyl cellulose, various types of lubricants such as mineral oil and glycerine, stimulants to increase flow of the undamaged salivary gland such as sugar-free lozenges and chewing gum and humidification of the rooms frequently used have all been tried to ease the discomfort.

Near the end of therapy the cancerous mass may develop large areas of necrosis requiring frequent debridement by a gentle flow of water to prevent any extensive infection which could also produce an unpleasant odour and taste.

### Post-treatment procedure

Much of the damaged tissue will gradually return to normal one or two weeks after completion of therapy. The alterations in the bone will remain to varying extents for many years and in some cases they may be permanent. The xerostomia may improve gradually



but occasionally the production of saliva never returns to previous levels and so the dentist and the patient must continue to cope with this situation. Since any lack of saliva contributes to an accelerated caries rate, the dentist must continue to see the patient periodically and both continue to carry out the necessary prophylactic measures. In addition, the risk of osteoradionecrosis is still present and the same precautions must be observed regarding extractions and possible sources of infection.

If pulpal and periapical lesions develop, endodontic treatment should be undertaken and extraction postponed as long as possible. If extractions are essential, they must be performed under controlled conditions, removing as few teeth as possible during each session with antibiotic coverage, alveoloplasty and soft tissue closure.<sup>4,9</sup>

The dentist should examine the soft tissue during each appointment for recurrences of the original cancer and for new lesions (Fig 11). Patients with previous oral cancers seem to be more prone to developing new oral lesions than the general population. The dentist should therefore view any slight deviation from normal with more than customary suspicion.

## Summary

The complications which develop in the tissues of the mouth during radiotherapy for oral cancer are presented. Emphasis is placed on the manner in which the dentist's knowledge can be used to increase the

effectiveness of the treatment and the patient's comfort during and after treatment.

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# Radiographic interpretation of antral mucosal changes due to localized dental infection

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*The authors describe characteristic periapical changes caused by pulpal and periodontal disease which can be distinguished on radiographs. They emphasize the care that must be taken to reach an accurate diagnosis, and point out the advantages of delaying treatment in equivocal cases.*

*Les auteurs décrivent les changements caractéristiques du périapex qui surviennent lors de maladies périodontaires et pulpaires et qui peuvent être reconnus sur les radiographies. Il faut veiller à l'établissement d'un diagnostic exact et les auteurs font ressortir les avantages qu'il y a à retarder le traitement s'il se présente un cas douteux.*

This paper concerns the effects and radiologic manifestations of certain periapical changes caused by pulpal and periodontal disease upon the adjacent mucous membrane lining the maxillary antrum.

## Anatomic factors

The size of the maxillary antrum varies substantially in different people and often on the two sides of the same maxilla. This means that the anatomic relationship between the apices of adjacent teeth and the antral floor must also vary. In some people with small antra, substantial amounts of bone intervene between the tooth roots and the antral floor while in large ones the only bone separating roots from antrum is the lamina dura, which lines the tooth sockets, and the layer of cortical bone lining the walls and floor of the air sinus. The bone separating tooth apex and air space may therefore be paper thin, yet it is normally visible on radiographs.

Because of the inevitable distortion caused by the projection and superimposition of radiographic shadows it is often impossible to determine the precise relationship of adjacent root apices to the antral floor. This is particularly so when the shadow of the cortex lining the antral floor appears to lie coronally to the shadow of the root apex. On the other hand, when the cortex of the antrum and the root apex are in anatomic juxtaposition the apparent anatomic relationship is likely to be correct. Normally, the lamina dura and antral cortex at least cover the root. When the lamina dura is not seen or is discontinuous it is highly probable that some abnormality exists.

The maxillary antrum is lined with a thin layer of compact bone known as the cortex of the air sinus. Immediately adjacent to the inner surface of this cortex is a thin soft tissue membrane which serves as the periosteum. This membrane is intimately attached to the bone and contains osteoblasts and osteoclasts which can produce or remove bone. Covering the periosteum and firmly incorporated with it is a layer of mucous membrane which is a delicate loose reticular tissue. Ordinarily quite thin, it may thicken substantially under certain circumstances. This mucosa is highly vascular and contains lymphatic elements and sero-mucinous glands which are most plentiful on the nasal wall but sparse on the lateral wall. The surface of the mucosa is ciliated pseudo-stratified epithelium containing goblet cells (Fig 1).

Radiologically the normal antrum appears as a dark radiolucent shadow because of the air content. At its periphery there is a thin white line representing the cortex, a compact layer of bone.

## Radiologic limitations

Only the corticated margins of the maxillary antrum appear with any clarity in radiographs. In fact, only those portions of the cortex which form the radiographic periphery can be clearly portrayed. In the intra-oral or lateral radiographic projections all portions of the antral walls or floor which lie buccal or palatal to the peripheral shadow fail to appear with any degree of clarity. Dehiscences occurring in the lateral wall of some antra are consequently not revealed at all. This may also be the case when a small oro-antral fistula is situated above the lowest part of the antrum, the cortex of which forms the radiographic periphery.

## Radiographic factors

The antral mucoperiosteum is not normally visible but abnormal soft tissue within the antrum replaces air and absorbs more x-radiation. Given the presence of sufficient air this may become apparent on radiographs. It is not possible radiologically to distinguish whether the soft tissue is inflammatory, cystic or neoplastic except by the shape and distribution of the shadow. Fluids absorb the same amount of radiation as soft tissue and therefore cannot be distinguished by radiographic density. It is obvious, then, that thickened mucosa may appear in radiographs so long



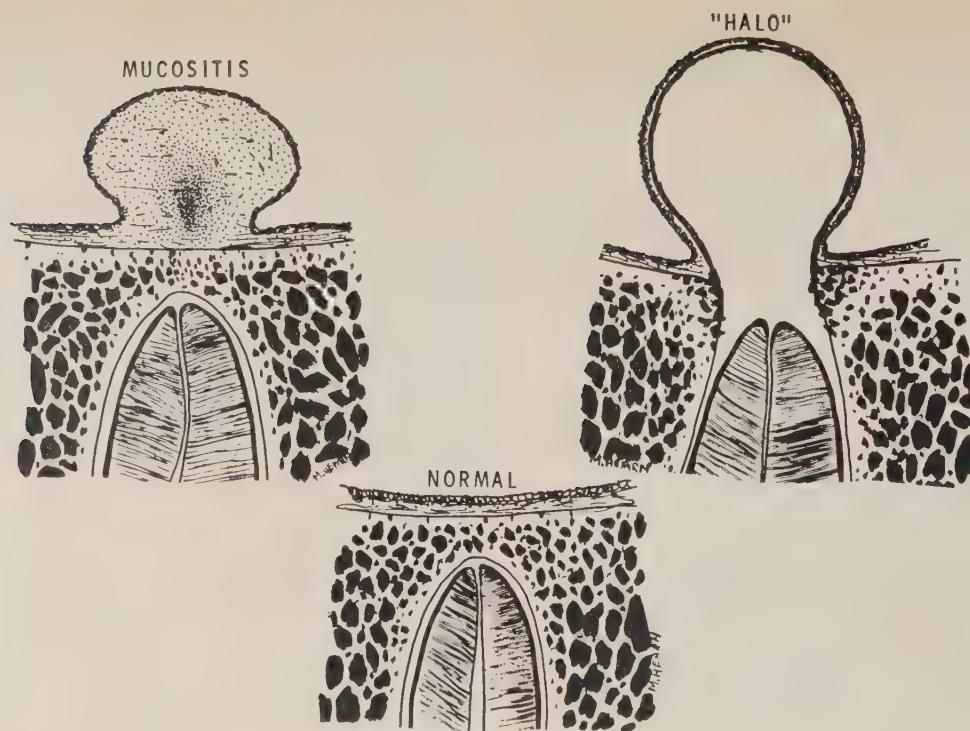


Fig 1 Diagrammatic representation of normal antral anatomy showing localized mucositis without bone change and periapical osteoperiostitis ("halo" shadow).

as there is adjacent air to provide the necessary contrast. An acute or chronic abscess, granuloma or dental cyst may develop as a consequence of pulpal disease. These lesions in the antral floor may produce changes when they develop at the apex of a root which approximates it anatomically. Acute alveolar abscesses cause bone destruction which may efface the antral floor and lead to antral empyema. The three chronic conditions may produce identical changes which are indistinguishable on radiographs. Radiolucency due to the disease process may be clearly visible. When the apex of the affected tooth appears within the shadow of the maxillary antrum, it may resemble changes which occur in any other part of the alveolar process and have similar causes. There is evidence of some discontinuity of the lamina dura but the continuity of the antral cortex is likely to appear undisturbed. However, where there is radiographic anatomic juxtaposition or close approximation of root apex and antral cortex not only is there discontinuity of lamina dura but the antral cortex disappears. At the same time the radiolucency is greater because of bone disease and is superimposed over the already radiolucent shadow of the antrum. Once the infected material reaches the periosteum the latter may be displaced from its normal site and assume a new position adjacent to the periphery of the disease process. The periosteum often deposits a thin layer of new bone which on radiographs tends to appear as a "halo" shadow highly characteristic of the disease (Fig 2).

Sometimes periapical bone destruction is minimal with only slight radiolucency or no apparent bone change at all, so that the antral floor appears to be quite normal. Yet some products of pulpal or perio-

dontal disease penetrate the antral floor and reach the mucosa, causing it to thicken locally. This may be apparent in radiographs if there is air within the antral cavity to provide the necessary radiographic contrast. Unlike antritis which causes the entire mucosa to thicken, the condition described here is local although it may vary substantially in area and size. Since the change is inflammatory and involves the mucosa the condition is in effect a "mucositis." This evidence may indicate which tooth is at fault and the probable nature of the infection. Although the disease process penetrates the periosteum, the latter is not induced to make bone. The only radiologic change within the antrum is the appearance of a soft tissue shadow adjacent to the floor (Fig 1).

The abnormal soft tissue has varying degrees of greyiness and varies in size and shape. It may be flat and ribbon-like, hemispheric or corrugated with two or more arcs of different curves. The free margins of the soft tissue shadow may be smooth and well-defined or ill-defined merging gradually with the air shadow (Fig 3-13). The upper free margin of the mucositis sometimes extends beyond the upper edge of a periapical radiograph so that the abnormality may be missed. In such cases a larger "occlusal" film may demonstrate the upper limits of the lesion (Fig 12). A similar situation may occur on the outer surface of the alveolar process deep to the gingiva or mucous membrane, with the radiographic difference that the gingival tissues adhere firmly to bone, have a firmer texture and there is no air-containing space to form a contrast with the adjacent soft tissue swelling.

Where the cause for thickened antral mucosa is an infected tooth, the radiographs often reveal relevant bone changes or thickened periodontal mem-



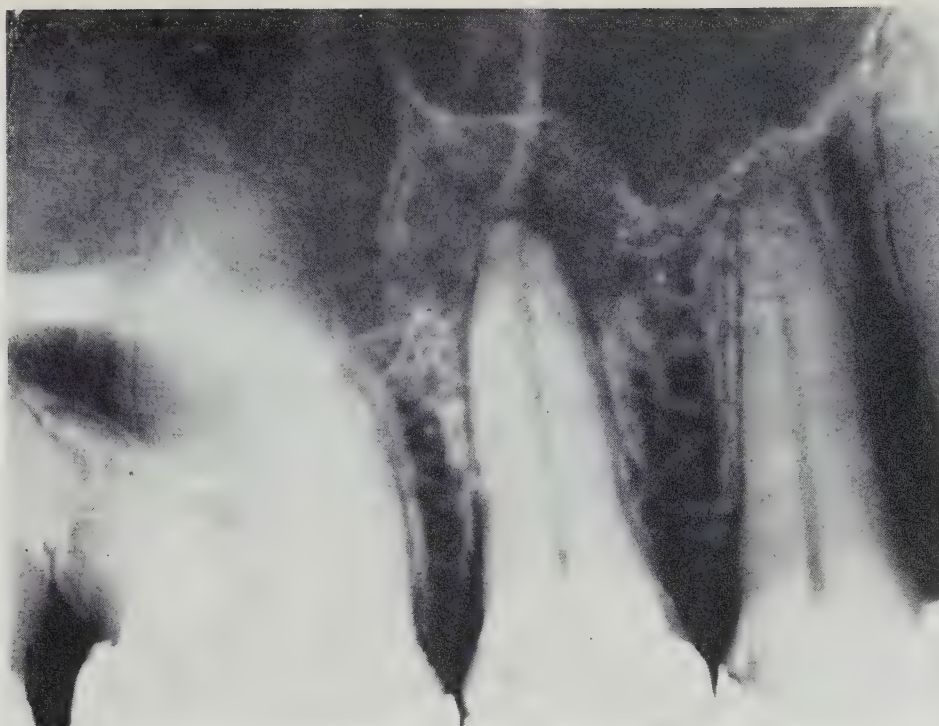


Fig 2 Periapical osteitis, showing destruction of part of the antral floor and formation of periosteal new bone ("halo" shadow).

brane. The corresponding radiologic changes are readily apparent, but when the only radiologic abnormality is mucosal thickening the evidence may well escape notice and valuable information could be lost. There is often some radiologic or clinical evidence of pulpal or periodontal disease. The nature of the abnormal soft tissue shadow may be determined from the effects of treatment of the responsible tooth. Disappearance of the shadow would support a diagnosis of mucositis. Should the shadow persist despite treatment other causes should be considered.

Periodontal disease, usually in relation to an upper first or second molar, occasionally produces a deep

bone pocket whose apex may approach the antral floor and cause the antral mucosa to thicken. A "halo" shadow rarely develops and the pulp of the affected tooth may remain vital. In very rare cases the bone pocket penetrates the antral floor without the patient's awareness. Patients who use an oral irrigator may also establish an antro-oral fistula, allowing the irrigating fluids to enter the antrum and then escape through the nose. Under such circumstances the entire antral mucosa thickens but this is only apparent in extra-oral radiographic projections.

The radiographs sometimes disclose both a "halo" shadow and the soft tissue shadow of mucositis which



Fig 3A Periapical osteitis with "halo" shadow and localized antral mucositis.

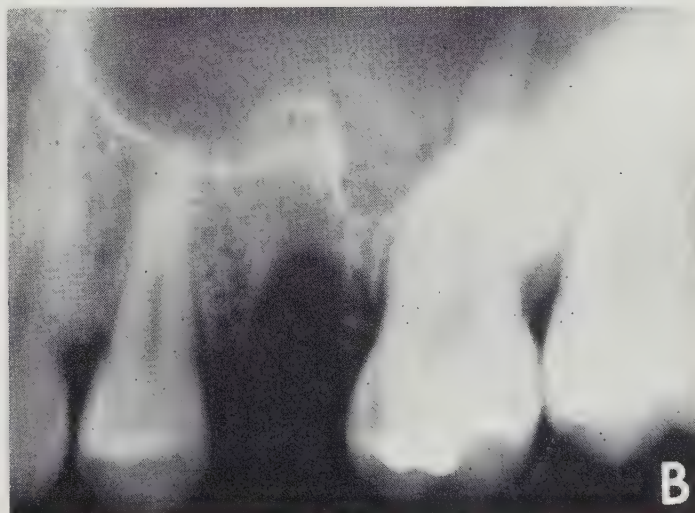


Fig 3B Partial healing of bone lesion and reduction in size of mucositis after a six week interval.



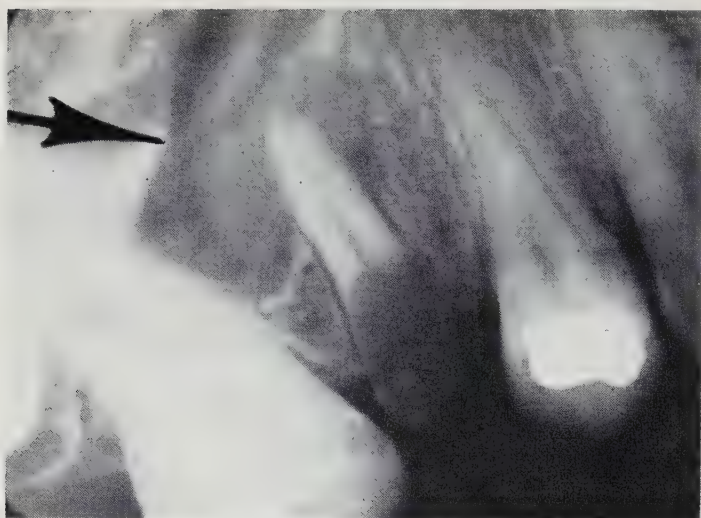


Fig 4 Retained infected root with apical osteitis and well defined localized mucositis.



Fig 5 Infected second bicuspid with no evidence of bone change and good evidence of antral mucositis. Margins of soft tissue are sharply demarcated.

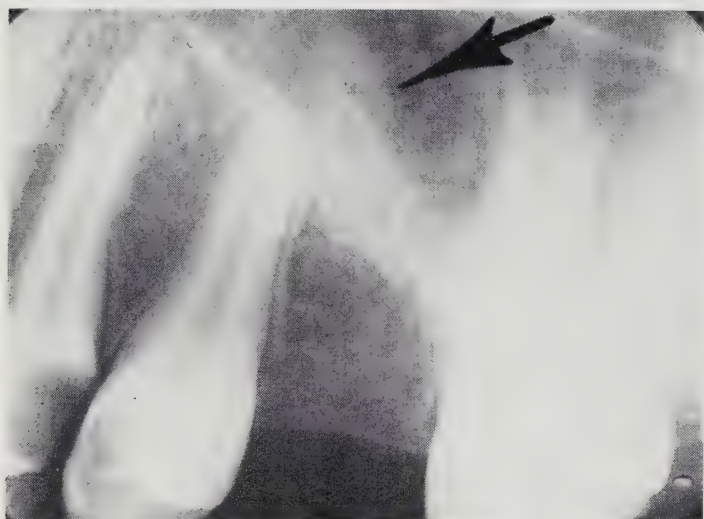


Fig 6 Infected bicuspids. Minimal bone change with ill-defined antral soft tissue thickening due to mucositis.

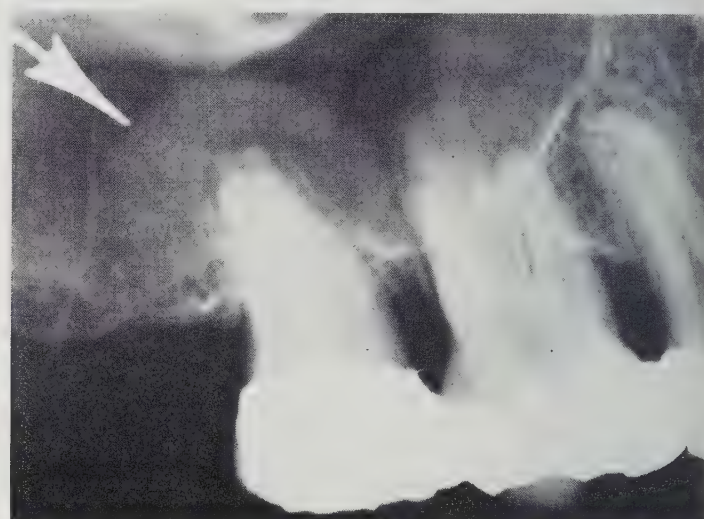


Fig 7 Upper second molar reveals slight osteitis and well marked localized antral mucositis.

is initiated by pulp disease (Fig 3). Pulp or periodontal disease are not the only causes for mucositis at the antral floor. This is exemplified by the case of an elderly man who had severe toothache in an upper molar. The tooth, which was surrounded by a deposit of calculus, was removed without difficulty. Several days later the patient returned suffering from pain and swelling on the buccal aspect of the alveolar process at the extraction site. The socket appeared healthy but some suppuration emanated from between the outer alveolar plate and the gingival tissues. Careful probing released a small mass of hard substance resembling calculus which had probably been forced into the tissue by the blade of the extracting forceps. Radiographs failed to reveal any bone change but there was substantial soft tissue thickening within the antrum with an undulating free surface (Fig 12). After removal of the calculus the symptoms subsided and subsequent radiographs disclosed resolution of the mucositis. None of the radiographs revealed any bone changes.

The evolution of soft tissue shadows caused by

antral mucositis varies in different patients. Most often the abnormal soft tissue disappears in a few days once treatment is initiated, especially when the infection is of recent origin (Fig 13). With chronic inflammation the mucosa takes longer to regain its normal state and casts no radiographic shadow. This is because chronic lesions tend to contain fibrous tissue. Eventually the soft tissue shadow disappears, although it may occasionally ossify and later undergo resorption. Very rarely the bone persists as a hyperostosis on the floor of the antrum. Most such bony prominences have an anatomic basis.

The "halo" shadow undergoes ossification during healing and eventually is resorbed and disappears, although it, too, may leave a remnant on the antral floor.

Antral mucositis may be entirely asymptomatic and appear only on radiographic examination.

The radiologic differential diagnosis embraces several possibilities. The commonest is the mucous retention cyst of unknown aetiology resulting from blockage of the duct of one or more of the sero-



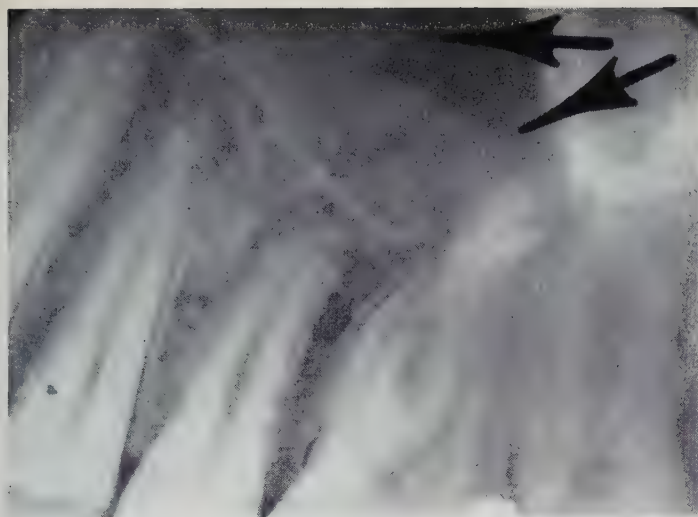


Fig 8 Non-vital upper second bicuspid without evidence of osteitis. Note the substantial antral mucosal thickening and localized antral mucositis.

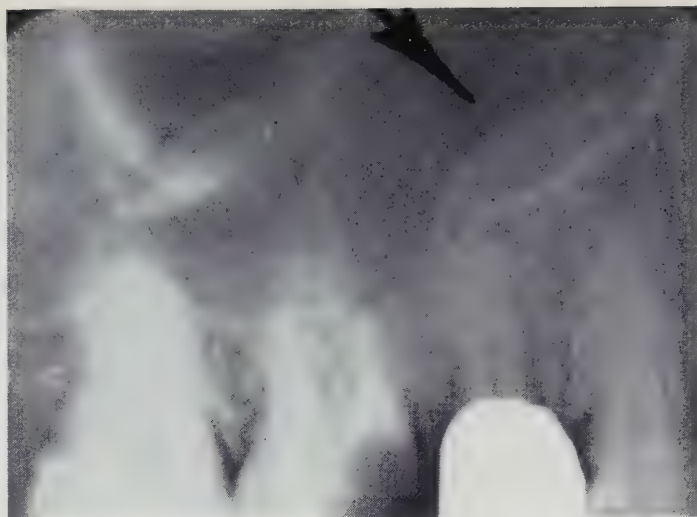


Fig 9 Apical osteitis affecting the second bicuspid. The flat thickened antral mucosa indicates mucositis.

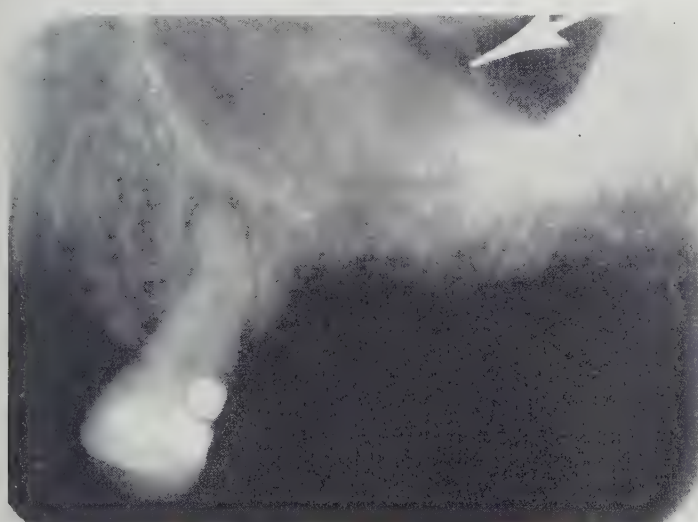


Fig 10 Slight general apical osteitis. Region above the tooth demonstrates substantial localized antral mucositis.

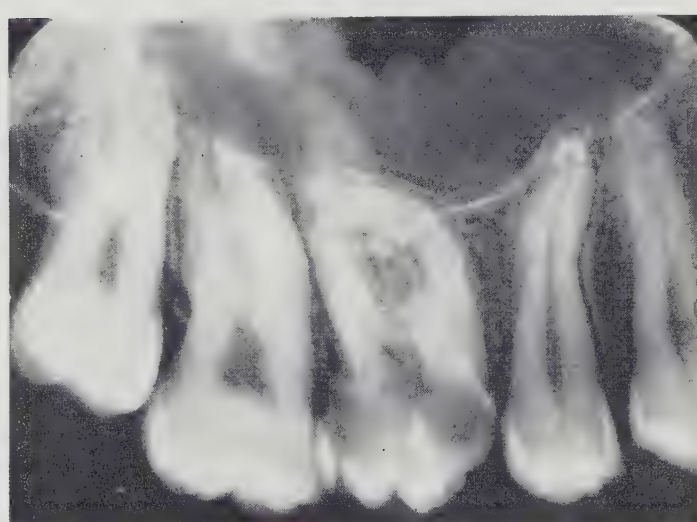


Fig 11 Infected upper first molar. Slight apical osteitis with thickened, nodular antral mucosa and localized mucositis.



Fig 12 Gross, localized antral mucositis.



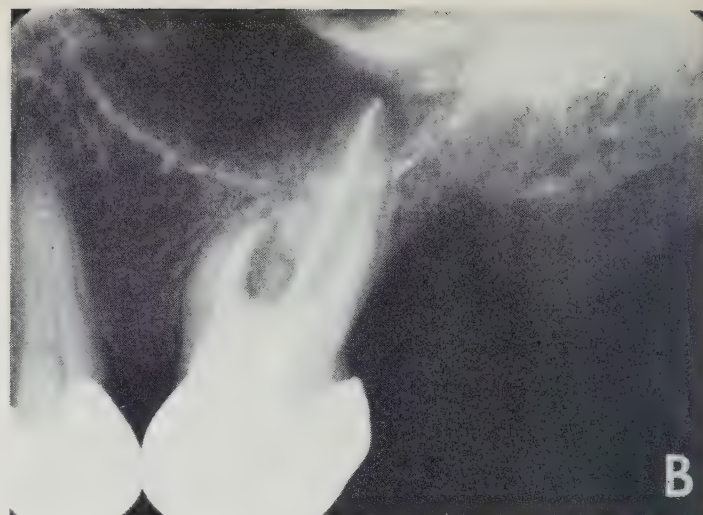


Fig 13 A, acute pulpal infection with antral mucositis. B, the same patient after a few days of endodontic treatment.

mucinous glands normally present in the antral mucosa. This blockage causes a cystic distension of the gland so that a soft tissue shadow of varying size is seen on radiographs with smooth curved borders and mostly spherical in shape. There are no bone changes related to these cysts; neither is there any bone production at the periphery or within the soft tissue. If there is any evidence of bone damage, the cause is not a mucous cyst. Mucous retention cysts usually rupture and disappear spontaneously. They are not considered to be significant clinically and mostly have radiologic interest. Dental cysts and most benign tumours arise in and destroy bone before they can encroach upon the antrum. This is a reliable way to differentiate such lesions from antral mucositis.

In anatomic specimens of the antrum the inner surfaces of the bony walls are usually uneven, with localized bulges or depressions that correspond to the varying thickness of the bony wall. Thicker regions are characterized by increased radiographic opacity which may simulate soft tissue thickening. Where such an image is demarcated by the linear shadow of a vascular groove the radiopacity probably has an anatomic rather than a pathologic cause.

Once a soft tissue shadow has been revealed within the antrum it should be carefully studied lest it may be due to a malignant tumour. Bone destruction makes the diagnosis more obvious but soft tissue lesions that are unaccompanied by osseous changes cannot be distinguished from their radiologic images alone. So long as the possible presence of a malignant tumour is considered and the consequence of a delay in treatment evaluated, it is often helpful to defer a diagnosis for about a month, when further radiographic examinations may provide the information necessary for diagnosis. Inflammatory lesions under treatment are likely to diminish or disappear, dental cysts or benign tumours may show no change while a malignant lesion can be expected to enlarge and encroach on bone.

When in doubt, antrostomy should be carried out. Readers should remember, however, that mucous retention cysts are extremely common. They usually cast smooth rounded shadows and tend to disappear spontaneously; it is therefore unnecessary to submit

them to antrostomy. Antritis, another and even commoner condition causing mucosal thickening, is unlikely to manifest in intra-oral radiographs. Any soft tissue shadow may escape recognition unless the radiograph shows some air space to provide the necessary contrast.

Apical osteitis which causes bone changes in the antral floor does not produce adjacent antral mucositis if the source lesion is not infected. Some granulomas are actually sterile if the infecting organisms are confined to the pulp cavity. In other cases the infection may be of such low virulence that the defences of the antral cortex are sufficient to protect the adjacent mucosa. The mucosa may be thickened without this being apparent on radiographs unless some of the free margin bordering the adjacent air space is included on the radiograph. Unfortunately, practical considerations preclude the microscopic study of antral soft tissue patients with mucositis. The general principles underlying all pathological changes, supplemented by evidence gleaned from other inflammatory conditions of the antral mucosa, substantiate the deductions and assumptions.

## Summary

This article has described localized soft tissue swelling of the antral mucosa due to dental infection and the associated radiologic appearance with the aim of making the changes more familiar to dentists. The term mucositis has been suggested. It is hoped that other observers will be encouraged to pursue the study of this condition.

The authors express appreciation to Doctors H. E. Simmons, W. Ross Upton, J. F. Reid, Matt Panar and others who referred patients or submitted radiographs included with this article.

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# A technique for registration of passive centric jaw relation

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*Accurate registration of centric jaw relation is an operation which is fraught with many hazards. The usual techniques leave much room for improvement. This report describes a method which is simpler and more reliable than other techniques.*

*D'ordinaire l'enregistrement précis de la relation centrée des mâchoires constitue une opération délicate pleine de risque. Les techniques habituelles peuvent être grandement améliorées. Cette étude décrit une méthode plus simple et plus fiable que les autres techniques utilisées.*

There are many problems associated with recording centric jaw relation and transferring the information to an articulator.<sup>1, 2</sup> This paper describes a technique which eliminates some of the difficulties. It does not encompass the establishing of centric jaw relation or vertical dimension.<sup>3, 4</sup> This is left to the preference of the individual reader. It is suggested, however, that these parameters should be determined in the temporization stage, prior to the final recording. This assures the dentist that the patient can function comfortably through the positions that are subsequently recorded for the fabrication of the permanent restorations.

## Problems of centric registration

There are two main problems. First, the recording methods usually require the patient to bite through or into the recording medium. As a result the proprioceptive impulses<sup>5</sup> stimulated by the interocclusal wax or paste often render an inaccurate recording. This has led to the use of various kinds of waxes<sup>6</sup> and zinc oxide-eugenol pastes. Secondly, there is the problem of transferring recordings to the articulator without distortion during storage and mounting. This is not easy because the method, temperature and humidity during storage and the amount and control of pressure on the wax when placed between two master or study casts inevitably produce discrepancies.

The technique described here is a basic method of stabilizing and recording positions for safe transfer. It is designed to eliminate as many of the variables as possible, and records centric relation at a given vertical dimension.

## Materials and methods

The required materials and the means of their applications are: (1) copings — cast or plastic, inflexible, with occlusal stops, well fitted to the preparations but not necessarily with marginal fineness; (2) stone — intra-oral, quick setting, fine grain, and hard enough to withstand laboratory handling; (3) syringe — large enough to carry the mixed stone to the mouth, and with a wide orifice to allow adequate placement in the mucobuccal fold. Variations may sometimes be desired. One alternative is to use an anterior acrylic resin jig instead of the copings on posterior teeth, but the same principles apply.

It should be stressed that the copings or anterior jig are only stops (Fig 1, 2). Opposing copings are adjusted occlusally with articulating paper and stones so that they eventually meet consistently at the required vertical dimension in centric relation. To facilitate this step, the accurate temporary crowns may





Fig 1 A fully seated acrylic coping. Note (a) incomplete marginal adaptation (unless one also wishes to check placement of margins), (b) buccal window to check proper adaptation of the coping, (c) flat occlusal surface which provides a positive stop against the opposing arch.



Fig 2 An anterior acrylic resin jig is used to verify and maintain centric relation at a given vertical dimension.

be removed from one side of the arch and the copings seated in their place. The aim is to achieve the same occlusal stops on the copings as on the pre-adjusted temporary crowns of the opposite side. It is only necessary to obtain such stops bilaterally with two sets of opposing copings as a minimum.

When the relationship of opposing copings is satisfactory, the patient should close the jaws. The stops meet passively, and the patient is instructed to hold this position. After mixing the quick-setting stone the syringe is loaded. With the patient still holding this stabilized position, one cheek at a time is retracted and the stone is injected (Fig 3, 4). This must be done quickly. The syringe must be expressed on either side from a point adjacent to the last molar to the level of each cuspid. It must be expressed so as to approximate the copings and all other prepared and unprepared teeth in order to adapt the stone to their contours. The curvature of unprepared tooth structures does not affect this procedure since the set stone is removed laterally, not occlusally. There must be

sufficient stone present in each area so as to prevent fracture of the recordings.

The stone hardens in a few minutes. The patient is warned that the setting stone is warm; this eliminates any anxiety and consequent movement at this critical time. The plates of stone are removed and checked for detail (Fig 5, 6). They are then trimmed back from the soft tissue areas with a sharp knife (Fig 7, 8), leaving records of the axial surfaces of all the adjacent teeth and occlusal recordings of prepared teeth that have not received copings. The casts are not mounted until the stone has dried completely. Once dried, they may be mounted at any time without fear of alteration by temperature changes or time lapse (Fig 9).

Stabilized acrylic resin base plates may be used in edentulous areas where copings cannot oppose each other. To record the relationship of opposing base plates, they are built up with acrylic resin so that they become stabilized bite blocks. These are notched buccally with acrylic burs so that the intra-



Fig 3 The injected stone solidifying in the area of the mucobuccal fold.

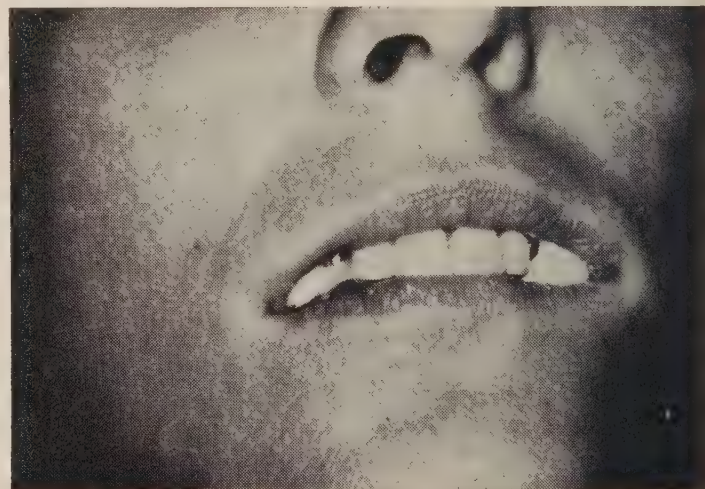


Fig 4 The stone plates extend forward to the cuspids as the patient remains immobile.





Fig 5 One of the stone plates with positive seating for the copings and imprints of the prepared teeth.

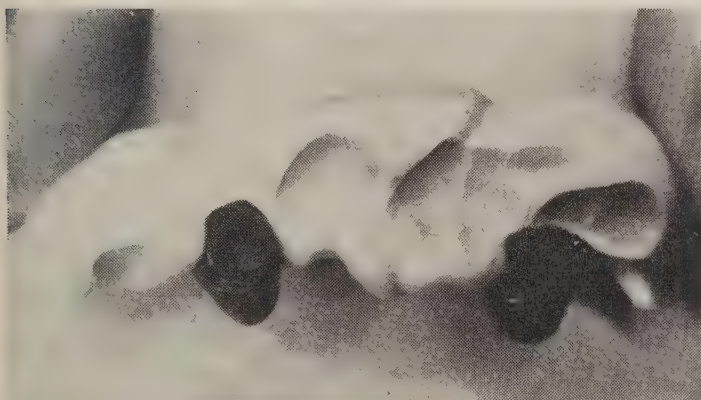


Fig 6 Occlusal view of the plate in Figure 5.

oral stone will flow into these notches to create an index.

## Summary

A method of obtaining intra-oral bite records so as to eliminate as many sources of error as possible is described. The reasons for the technique are given. Such a method may be instituted for study casts as well as for master working casts of the most extensive fixed or fixed-removable prosthodontic case.

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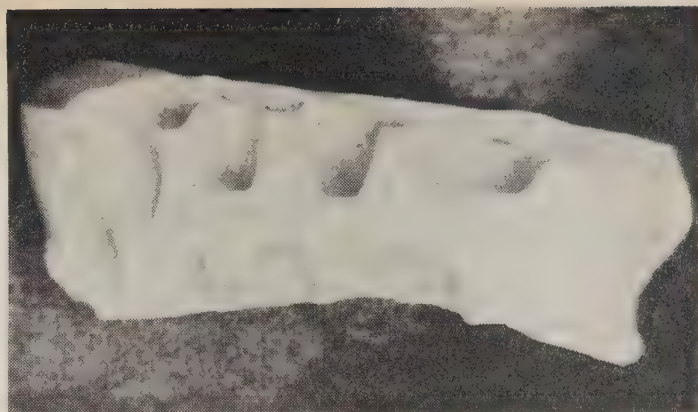


Fig 7 Stone plate after reduction of the gingival excess and prior to mounting on an articulator.



Fig 8 Two stone plates and an anterior acrylic resin jig. In this case the lower posterior copings oppose natural unprepared upper teeth.



Fig 9 Lateral view of the approximation of two casts with one of the stone plates in preparation for mounting on the articulator.

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# Reviews / Analyse

## Book Reviews

### Temporary and Semipermanent Splinting: An Atlas of Clinical Procedures

*Andrejs Baumhammers. Toronto, McGraw-Hill, 1971. 117 p. Illus. \$11.00*

This small atlas of approximately 110 pages deals with temporary and semi-permanent splinting of periodontally involved mobile teeth.

The author has divided his book into two divisions: (1) extracoronary and (2) intracoronary splints. Indications for their use and step-by-step procedures for each type of splint are presented to the reader.

As a teacher, Doctor Baumhammers correctly states that this subject is inadequately covered in the average undergraduate course in periodontology and his book is therefore intended as a guide for undergraduate students and general practitioners.

The book is well illustrated with clinical photographs and diagrams, but it could have benefited from some colour photography, particularly to show the advantages of a prosthetic gingival stent.

*F. C. Lackie*

### Essentials of Medicine for Dental Students

*A. C. Kennedy. Ed 2. Edinburgh and London, E & S Livingstone, 1970. (Available from the Macmillan Company of Canada Limited, Toronto) 284 p. Illus. \$7.50*

This is a small readable book of 276 pages, the last 12 of which are illustrations in the form of an appendix. Only a few line drawings appear in the text.

The first three chapters deal with infection. The next 11 are on diseases of organs and tissues, including nutritional disorders and allergies, and the last chapter is on the use of common drugs.

The first chapter on diseases due to infection covers sources, transmission, prevention and control, and viral, Rickettsial, bacterial, spirochaetal, fungal,

protozoal and metazoal infections. It does all this in the confines of 16 pages.

The next chapter deals with tuberculosis and the third with venereal diseases. The longest chapter is on disorders of the heart and blood vessels and the last, the shortest, is on allergy which is dealt with — almost dismissed — in 11 pages.

For those who appreciate the "Reader's Digest" approach, such comparison must be a recommendation. But many chapters, particularly the one on diseases due to infection, are inadequate for the dental curriculum.

Although a dental student may only retain a small amount of knowledge from reading a comprehensive volume on general medicine, at least the entire volume is available for referral. Dental students should therefore have access to a more comprehensive book for their training in medicine.

*G. J. Parfitt*

## Additions to the Library

AMERICAN ASSOCIATION OF DENTAL EXAMINERS. The philosophy and approach to meet the dental needs of the times: the program . . . the progress . . . the product. Presented at the 85th annual meeting of the American Association of Dental Examiners. Miami Beach, Fla, October 26, 1968. 27 p

AMERICAN DENTAL ASSOCIATION. The 21st National Dental Health Conference sponsored by the Councils on Dental Health and Dental Care Programs. ADA Chicago, April 27-29, 1970. 585 p. Mimeo

BELL, B. H. and GRAINGER, D.A. Basic operative dentistry procedures. Ed 2. Philadelphia, Lea & Febiger, 1971. 405 p. Illus. \$21.50

COLBY, R. A., KERR, D. A. and ROBISON, H. B. G. Color atlas of oral pathology. Ed 3. Toronto, Lippincott, 1971. 207 p. Illus. \$19.75

DRUMMOND-JACKSON, S. L., ed. Intravenous anaesthesia — SAAD, Based on postgraduate course lectures and material. Ed 5. London, Society for the Advancement of Anesthesia in Dentistry, 1971. 420 p. Illus. £14

JOHNSTON, J. F., PHILLIPS, R. W. and DYKEMA, R. W. Modern practice in crown and bridge prosthodontics. Ed 3. Toronto, W. B. Saunders, 1971. 692 p. Illus. \$18.05

KERR, D. A. and ASH, M. M. Oral pathology; an introduction to general and oral pathology for hygienists. Ed 3. Philadelphia, Lea & Febiger, 1971. 310 p. Illus. \$10.75

KILLEY, H. C., SEWARD, G. R. and KAY, L. W. An outline of oral surgery. Part 1. Bristol, John Wright & Sons Ltd, 1971. 190 p. Illus. \$6.50

LE RICHE, W. H., HILDITCH, JOHN, DEMANUALE, F. and SUTHERLAND, F. CAROLINE. People look at doctors: The Sunnybrook Health Survey. University of Toronto Division of Health Sciences, Toronto, Sunnybrook Hospital, 1971. 204 p. Tab. \$4.00

LUNDEEN, H. C., consulting ed. The dental practice of North America. Vol 17, No 3, July 1971. Symposium on crown and bridge. Pages 523-768. Illus

McHUGH, W. D., ed. Dental plaque: a symposium held in the University of Dundee, Sept 22-24, 1969. 298 p. Illus. \$16.25

PARKIN, S. F., HARGREAVES, J. A. and WEYMAN, J. Children's dentistry in general practice. London, British Dental Association, 1970. 54 p. Illus. £80

RAFLA-DEMETRIUS, S. Mucous and salivary gland tumours. Springfield, C. C Thomas, 1970. 283 p. Illus. \$21.00

RAMFJORD, S. P. and ASH, Maj. M. Jr. Occlusion. Ed 2. Toronto, W. B. Saunders, 1971. 427 p. Illus. \$17.00

RICHARDS, N. D. and COHEN, L. K., ed. Social sciences and dentistry; a critical biography. London, Fédération Dentaire Internationale, 1971. 381 p

SASSOUNI, V. With the collaboration of E. J. Forrest. Orthodontics in dental practice. St. Louis, Mosby, 1971. 593 p. Illus. \$25.75

STEPHENS, R. G., ed. A symposium on dental research and education. Presented at the 6th Biennial Conference on Canadian Dental Research. Halifax, NS, Association of Canadian Faculties of Dentistry — l'Association des Facultés Dentaires du Canada, June 1971. 77 p

SUTHERLAND, V. C. Synopsis of pharmacology. Ed 2. Toronto, W. B. Saunders, 1970. 720 p. Illus. \$11.10



## Policing errant dentists

That dour aphorist Ambrose Bierce, in *The Devil's Dictionary*, defined the dentist as "a prestidigitator who, putting metal into your mouth, pulls coins from your pocket." Coming from one of America's most gifted misanthropes, the description is hardly surprising. But as recently as last year a member of the dental fraternity itself raised his voice in hearty agreement with Bierce. Writing under a protective pseudonym, "Paul Revere" warned that the profession is full of sleight-of-hand artists who are not only robbing their patients but ruining their mouths in the process. His book, *Dentistry and its Victims*, received wide publicity as a sensational exposé of poor dentistry in the United States. Its allegations of slipshod dental procedures, though unsubstantiated and, at best, one man's opinion, are nevertheless significant. Undoubtedly, there are some dentists, as there are men in all walks of life, who put material gains ahead of service to the public. And there may well be others who lack the newer skills necessary for today's dental practice. In either case this is inexcusable, especially when health is at stake.

To a public which is increasingly aware of its consumer rights no complaint or injustice is too trivial. And when the public protests, politicians listen because, as Ontario's former Health Minister A. B. R. Lawrence aptly observed, "One per cent of doctors acting irresponsibly can cost us a devil of a lot more than 1 per cent of the money."

The lesson for the professions is inescapable. Not only must their houses be intact; they must be

visibly seen as being beyond reproach — as in Manitoba, where dentists have voted to accept more stringent policing by their own association. Otherwise they may find strangers knocking on their doors trying to do the job for them — as in Quebec, where the National Assembly is considering tough new legislation that would force the professions to open up their books annually to inspectors and bring in outside investigators to probe cases of suspected fraud, malpractice or incompetence. The aim of this legislation is to protect the public against abuses by members of the professions, says Quebec Solicitor-General Roy Fournier who is responsible for seeing Bill 250 through the Assembly. And the wording of the bill seems to reflect his government's thinking that the professions are some sort of public nuisance that has to be watched.

With recurrent public rumblings about the shortage of dentists, denture service, poor distribution of dentists and higher costs, it is perhaps inevitable that dentistry should be a prime target for investigation and reform. The solution to these problems lies in more adequate dental insurance programs, more dentists and the greater use of well trained auxiliaries to take over many of the routine chores, leaving the dentist more time to devote to more complex ones. But the profession must first initiate steps as in Manitoba to see that quality dental care is available to everyone. Otherwise, public tolerance will sooner or later wane for a group which prefers not to let anyone — including government — tell it how to run its own business.



## Pour maintenir l'ordre

C'est Ambrose Bierce, ce moraliste sévère qui dans son livre, *The Devil's Dictionary* définissait le dentiste comme "un prestidigitateur, qui en mettant du métal dans votre bouche, remplit ses poches de bel argent sonnante". Venant d'un des misanthropes les plus doués de l'Amérique, cette description du dentiste n'a rien pour surprendre. Mais, l'an dernier même, un membre de la fraternité dentaire éleva sa voix, faisant ainsi écho à ce que Bierce déclarait. Utilisant un pseudonyme, "Paul Revere" avertissait le public que notre profession était encombrée d'artistes prestidigitateurs qui ne se contentaient pas de voler leurs patients, mais ruinaient leurs bouches par la même occasion. Se présentant sous la forme d'un pamphlet virulent sur la médiocrité de la dentisterie aux Etats-Unis, son livre, "La dentisterie et ses victimes" reçut une publicité monstre. Dans ce livre, les déclarations portant sur le travail bâclé du dentiste, bien qu'étayées par aucune preuve, et au mieux n'exprimant l'opinion que d'un seul homme, sont néanmoins significatives. Sans aucun doute y a-t-il certains dentistes, comme on en trouve un peu partout dans tous les domaines, qui placent le gain matériel avant le service rendu au public. Et peut-être aussi en existe-t-il d'autres qui ne possèdent pas les techniques modernes requises aujourd'hui dans l'exercice de l'art dentaire. Dans les deux cas il n'y a pas d'excuses, surtout lorsque la santé du public est en jeu.

Ce public est de plus en plus conscient de ses droits en tant que consommateur, et aucune plainte, aucune injustice ne doivent être traitées à la légère. Et lorsqu'il proteste, ce public, les hommes politiques écoutent car, comme le déclarait si justement A. B. R. Lawrence, ancien ministre de la santé de l'Ontario: "Un pour cent des médecins agissant de façon irresponsable nous coûte diablement plus cher qu'un pour cent de l'argent qui nous est alloué."

Cette leçon, nos professions ne peuvent l'ignorer.

Non seulement leurs maisons doivent-elles être impeccables, elles doivent quant à elles être au-delà de tout reproche, comme au Manitoba où les dentistes ont décidé ensemble d'accepter de leur propre association un code de discipline plus sévère et plus strict. Autrement ils pourraient bien voir arriver, cognant à leurs portes, des étrangers qui feraient le travail à leur place, comme cela se passe au Québec où l'Assemblée nationale étudie une nouvelle loi, très dure, qui forcerait les membres de la profession à ouvrir leurs livres tous les ans à des inspecteurs, et instituerait des enquêteurs qui seraient chargés de vérifier les fraudes possibles, les fautes professionnelles ou simplement l'incompétence du membre en question. Cette législation a pour but de protéger le citoyen contre tout abus de la part d'un membre de nos professions, de déclarer Roy Fournier, solliciteur général du Québec, chargé de faire passer le Bill 250 à l'Assemblée. Dans sa forme même le projet de loi semble bien refléter la pensée de son gouvernement, à savoir que les professions de la santé sont une espèce de plaie publique qu'il faut surveiller de près.

Avec ces plaintes incessantes de la part du public concernant le manque de dentistes et de services de prothèses, la mauvaise répartition des dentistes et les coûts toujours plus élevés, il semble inévitable que la dentisterie fasse l'objet d'enquêtes et de réformes. Mais la solution à ces problèmes réside dans l'augmentation du nombre de dentistes et aussi dans l'utilisation plus grande d'auxiliaires qualifiées qui pourront se charger du travail de routine pendant que le dentiste se consacrera à des tâches plus complexes. Mais avant tout, la profession doit donner l'exemple, comme au Manitoba, et démontrer que chacun peut bénéficier de services dentaires de qualité. Sans quoi, tôt ou tard, le public ne fera plus confiance en un groupe qui préfère ne laisser personne — y compris le gouvernement — lui dire comme mener sa barque.



*The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space. Your participation in this section is invited.*

*Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Vous êtes invités à participer à cette section du Journal.*

## Pin reinforced amalgam

I compliment Doctors Duperon and Kasloff for their remarkable work, "Effects of Three Types of Pins on Compressive Strength of Dental Amalgam" (November Journal). But due to a reliance on traditional approach in the experiments, their conclusions are neither new nor better than those of previous investigators. Storer and Markley's influence on the technique of pin reinforced amalgam restorations is still so strong that the authors went along with the Americans' principles which are basically wrong.

The problem arises from using two or more components with different physical, electrochemical and other properties. The consequent physical response to a load in terms of tensile, compressive and shearing stresses manifests not only in a linear, but in a vertical direction as well. Metallic coatings represent another problem. Whether done by dry or wet deposition (electroplating), the aim is to achieve a continuous coating of uniform thickness. Failures result from gaps, cracks, detachment and stress. Gerischer<sup>1</sup> has described in two steps the deposition of silver: (1) penetration of ions through the phase boundary to give absorbed atoms (Adatoms), and (2) the fitting of these atoms into a stable position relative to the lattice.

Doctors Duperon and Kasloff claimed a metallurgical union between amalgam and an electroplated platinum-gold-palladium pin in Figures 7 and 8. But if one observes the differences in grain size (Fig 7), it is certain that no atomic or molecular union has been established. There are bridges and close relation between the pin and the amalgam. But the formation of bridges does not necessarily imply an interaction of free mercury, "amalgam alloy" and silver. In Figure 8 we clearly observe a close adaptation of the silver coating and the "stress line" established by ionic equilibrium (attraction-repulsion). The thickness of a metallic electro-coating averages 0.0002 inches. Yet even if there is a true union between base metal and the coating, could this produce a meaningful adhesion that is strong enough to resist the stresses volume to volume?

In view of the above reasoning, the application of stainless steel or other pins invites failure. I therefore propose that dental scientists:

1. Seek a material with similar properties and response to physical and electrochemical actions as amalgam alloy;

2. From this material fabricate pin and mesh combinations;

3. Depart from Black's traditional concept of cavity preparation. We must place more stress on the importance of tooth structure and not sacrifice tooth material for an aesthetic outline and inferior filling material. Instead of smoothly prepared cavity walls, serration could be utilized to increase anchorage.

In their final conclusion Doctors Duperon and Kasloff urge readers to "use a minimum number of pins." Is this a recognition of the need for further investigation?

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1. Gerischer, H. *Electrochemische Zeitung*. 62:256, 1958.

## Metronidazole and ANUG

We were pleased to read the article by Doctors Proctor and Baker (October Journal) on the use of metronidazole for the treatment of acute necrotizing ulcerative gingivitis, as we have had considerable experience and success using the drug for the treatment of this condition. We would like to comment on the drug dosage administered by the authors.

The *Compendium of Pharmaceuticals and Specialties*<sup>1</sup> discusses the use of the drug for the treatment of trichomoniasis in both male and female patients, and the dosage recommended is 250 mg twice daily (occasionally increasing to three or four times daily) for

a duration of 10 days. Discussing the same condition, the *British National Formulary*<sup>2</sup> recommends a dosage of 200 mg three times per day for seven days.

The only formulary to discuss the drug in its application to ANUG is the *Dental Practitioners Formulary*<sup>3</sup> which recommends a dosage of 200 mg twice per day on the first day and three times per day for the following two days. It notes that the drug is secreted in the saliva and should be used as an adjunct to local treatment.

Studies on the serum and saliva concentrations of metronidazole following oral administration of 200 mg of the drug<sup>4,5</sup> show that concentrations sufficient to immobilize oral spirochaetes are achieved after one hour and that these organisms usually disappear from the mouth within 24 hours. There is also a considerable reduction of fusiform bacilli,<sup>6</sup> although this may occur somewhat more slowly.<sup>5</sup>

As metronidazole is suitable only for the acute phase of necrotizing ulcerative gingivitis, the minimum dose which achieves this objective is the one of choice. The three patients discussed by Doctors Proctor and Baker were immensely better within 24-48 hours, suggesting that the dosage recommended by the *Dental Practitioners Formulary* is perfectly adequate provided local treatment of oral hygiene instruction, scaling and root planing, plus any necessary gingival surgery are also undertaken.

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1 Compendium of Pharmaceuticals and Specialties (Canada). Ed 7. Toronto, The Canadian Pharmaceutical Association Inc, 1972.

2 British National Formulary. London, The British Medical Association and the Pharmaceutical Society of Great Britain, 1968.

3 Dental Practitioners Formulary. London, The British Medical Association and the Pharmaceutical Press, 1968.

4 Kane, P. O., McFadzean, J. A., Squires, S. et al. Absorption and excretion of metronidazole. I. Serum concentration and urinary excretion after oral administration. *Brit J Vener Dis* 37:273, 1961.

5 Davies, A. H., McFadzean, J. A. and Squires, S. Treatment of Vincent's stomatitis with metronidazole. *Brit Med J* 5391:1149, 1964.

6 Fletcher, J. P. and Plant, C. G. An assessment of metronidazole in the treatment of acute ulcerative pseudomembranous gingivitis (Vincent's disease). *Oral Surg* 22:729, 1966.



## Local anaesthesia for cardiac patients

The paper by Doctors White and Smyl-ski (January Journal) is a well written, accurate and informative article which points out the importance of thorough evaluation, careful management and medical consultation.

Premedication or sedative procedures, regardless of the drugs used or the mode of administration, are predicated on retention of the protective reflexes, minimal CNS depression, patient comfort and cooperation, and predictability and controllability. The authors' technique satisfies these requirements and represents a safer and simpler alternative to general anaesthesia. As stated, the hospital environment and skilled personnel should be utilized where possible.

Modern medical and surgical techniques are providing longer and more useful lives to patients who in the past would have succumbed to cardiac disease. High risk patients require careful and complete dental attention with minimal stress.

Prior to the advent of the newer psychosedative and analgesic drugs, dentists thought only in terms of either local or general anaesthesia with all types of patients. Now, more procedures are being performed in this "middle ground" of effective sedation and adequate local anaesthesia which provides a better physiologic balance between stress and safety.

The authors also indicate the planning required in order to meet the needs of the individual patient.

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## Polycarboxylate cements

It is of interest that we have a luting and cavity lining material possessing properties which are apparently superior to those of existing materials commonly used for this purpose in dental procedures. Zinc polycarboxylate cement is the material, and a recent article reporting initial pulp response appeared in the July 1971 issue of the Journal.

The results reported by the authors, Doctors Barnes and Turner, bring up several points which must be considered when pulpal response is evaluated. Kaare Langeland, chairman of the Working Group on Biological Testing of Dental Materials of the FDI, speaking in Munich in June 1971, emphasized the difficulty in determining biologic reactions in the pulp. He clearly demonstrated that long-term effects might differ from those observed after a short period of time. A minimum of 90 days may be necessary to make a reasonable assessment.

Another point which may be questioned concerns the effectiveness of the handpiece coolant during cavity preparation. Very often the coolant is not directed to the tip of the cutting tool as expected; therefore, its efficacy is questionable.

Finally, one might well question whether similar operations on maxillary or mandibular incisors would produce the same effect as reported by the authors. They quite correctly state that, based on their limited study, statistical inference should not be attempted.

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## Cavity liners

Doctors Baume, Holz and Fiore-Donno are to be commended for their recent article in the January Journal. It is interesting that some lining materials which we consider as "kind" to the pulp are, in fact, somewhat irritating. The pH of these calcium hydroxide cements is about 12 and remains constant at this value with time. This explains why they are such good barriers to acid cements and filling materials. Very likely the minor irritation provides the stimulation necessary for the many successful pulp cappings that have been reported using calcium hydroxide.

We need not however abandon the use of the calcium hydroxide base. The authors' experience with Hydrex does not necessarily imply that all calcium materials should be discarded. The Hydrex used in their study contained a "selected" autopolymerizing resin and this material may well be the culprit causing not only the gas bubbles seen in the pulps (as suggested by the authors) but also the pulpal reactions they reported. In addition, the number of teeth used in the study was minimal and, although I do not question the authors' findings, a further study using more teeth of various ages to eliminate biological variations is desirable. Also various types of commercial calcium hydroxide materials should be evaluated to see whether the same reactions occur.

Time is always an accurate barometer as to the clinical effectiveness of various dental materials and calcium hydroxide, along with zinc oxide-eugenol cements, has received almost universal acceptance as a material which is kind to the pulpal tissues.

I heartily agree with the authors that international agreement is required for the evaluation of pulpal reactions. The literature is full of conflicting pulp studies and most of this is due to the different criteria used in histological in-

terpretations by the various investigators. I hope that articles of this type by serious workers act as a catalyst for such a meeting of minds.

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## Produits intermédiaires d'obturation

On se doit de féliciter les docteurs Baume, Holz et Fiore-Donno pour leur article paru dans le Journal de janvier. Il est intéressant de noter l'effet irritant d'un matériau considéré comme un pansement pulpaire. Le pH de 12 des ciments à l'hydroxide de calcium est alcalin et demeure constant à ce chiffre avec le temps; ceci explique leur pouvoir d'isolation de la pulpe des obturations acides. Il est fort probable que cette irritation mineure soit le stimulus nécessaire pour produire la guérison dans le grand nombre de coiffages réussis avec l'hydroxide de calcium.

On ne doit pas pour autant abandonner totalement l'usage de l'hydroxide de calcium. Un échec avec le ciment Hydrex ne doit pas signifier un rejet de tous les matériaux de la même base. Le ciment Hydrex utilisé dans cette étude contenait une résine dite "selected" et c'est peut-être cette résine qui cause les "bulles" décelées dans la matrice prédentinaire (comme les auteurs le suggèrent) ainsi que les autres réactions pulpaires. De plus, quoi que nous ne doutions pas des résultats obtenus, il est à noter que les auteurs se sont quand même servis d'un nombre de dents minime; d'autres études utilisant un plus grand nombre de dents de différents âges afin d'éliminer les variantes biologiques seraient indiquées. Aussi il serait bon de tester les autres produits commerciaux qui se réclament comme des composés à base d'hydroxide de calcium pour voir s'ils réagissent de la même façon.

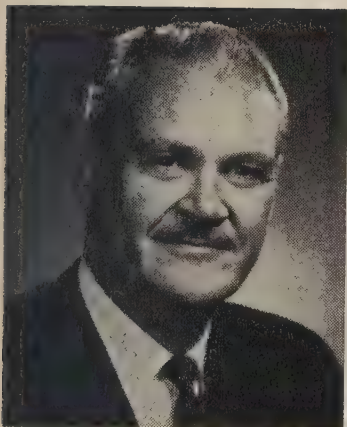
Le temps a toujours été un bon juge pour établir l'efficacité clinique de divers matériaux et l'hydroxide de calcium, comme le ciment oxide de zinc-eugénol, a toujours été accepté comme un excellent matériau à coiffage pulpaire.

Nous sommes d'accord avec les auteurs à savoir qu'une entente internationale est nécessaire pour uniformiser l'évaluation des réactions pulpaires. Les publications dentaires contiennent beaucoup d'études pulpaires qui se contredisent, ceci étant sûrement dû à des différences de procédures et à différents critères d'évaluation histologique. Espérons que des études comme celles-ci faites par des chercheurs sérieux pourront agir comme catalyseur dans un effort d'uniformisation des procédures.

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## EXECUTIVE DIRECTOR'S PAGE



W. G. McIntosh, DDS

### Conference on continuing education

Several references have already been made in the 1971 *Transactions* and in this page to the fact that the Board of Governors approved the Council on Education's recommendation that a conference on continuing education be held, with or without financial assistance.

I am now pleased to report that a grant has been authorized for such a conference from the National Health Grant Fund. A recent press release from the Department of National Health and Welfare carried the following announcement:

"National Health and Welfare Minister John Munro today announced a \$16,089 health grant to the Canadian Dental Association to help sponsor a national conference on dental education.

"The conference, which will take place later this year, will discuss methods of offering continuing dental education programs for dental general practitioners, specialists and other dental health groups. The conference agenda includes the future development of dental education programs and dental manpower resources.

"The responsibilities of the dental associations, licensing bodies and governments in organizing and administering continuing dental education programs will also be discussed.

"A report will be published at the conclusion of the conference."

The willingness of the federal government to allocate funds toward a study of methods suitable for continuing education of dentists is one indication of the

importance that is presently being placed, not only by dentists themselves but also by the public and the government, on delivery of high quality dental care.

The conference will be organized under the auspices of the Council on Education and will be held September 25 to 29, 1972 at the Ontario Institute for Studies in Education, Toronto. Earlier dates in 1972 had been proposed but these turned out to be impractical due to the timing of the National Health Grant Review Committee's response to our application and to conflict with other Association activities.

It is hoped the conference will provide practical answers to the questions of appropriate methods by which meaningful continuing education programs can be made available to dentists. Individual dentists, licensing boards and other professional associations all have a keen interest in the subject and the conference has potential for setting a pattern that may affect us all.

### Audio cassette education program

Negotiations regarding the establishment of a continuing education program for dentists by way of audio cassettes and visual supplements have drawn out over a longer period of time than was at first anticipated. However, negotiations have now been satisfactorily completed with "Medifacts Limited" and the cassette program will be offered to members of CDA, providing sufficient numbers sign up for the program. If enough members are interested, we will be able to offer the program in both English and French.

Further details of the program will probably already have reached you by the time you read this column. Should you wish to participate in it fill out and return the appropriate application form right away. Remember, the success of this program depends to a large extent on individual participation.

### Insurance and investment seminar

The chances of a national seminar being washed out twice within a month because of air strikes and inclement weather seemed unlikely. A seminar, funded by the Canadian Dental Service Plans Incorporated and organized by the CDA Insurance and Investment Council, was first scheduled for January 20 in Montreal. It had to be cancelled at the last minute because few of the Council members and invited participants from across Canada could arrange transportation. It was rescheduled for February 20, again in Montreal, and again strikes, coupled with the city's worst snow storm of the year, made the rendezvous difficult for everyone and impossible for some.

Nevertheless, the seminar was held February 20 with 24 participants, out of an expected 38, in attendance. Doctor Dave Way, chairman of the Insurance and Investment Council, did an excellent job of chairing the discussions and improvising where necessary to take the part of those keynote speakers and panelists unable to attend.

The theme of the seminar was "National Strength Through Individual Participation." Its objective was to

(Continued on page 157)



*Participants at a recent National Health Manpower Conference in Ottawa concluded that nothing will correct the maldistribution of dentists, physicians and nurses without government subsidization for students followed by a commitment to service in some part of the nation undersupplied by health manpower. Mr. Edwin Yen, a final year student at McGill University, Montreal, and K. F. Pownall, registrar of the Royal College of Dental Surgeons of Ontario, comment on the suggestion.*

## Student subsidization solves manpower disparity and challenges profession's autonomy

Today's dental student faces a demanding course of training and education. Not only must he contend with a constantly increasing academic load as research expands and clinical techniques acquire new and varied approaches, but he must also school himself in the concepts, ethics and philosophies that probably attracted him to dentistry in the first place, and without which he cannot identify with the profession.

The student develops a sense of professional responsibility according to the status and prestige which society accords his profession at that particular time. This respect in turn is governed by society's needs and demand for that profession's services.

Over a generation, society's demands for health service have changed. Health is no longer regarded as a luxury and privilege for those able to pay; it is viewed as the right of all. Unfortunately, in Canada there is disproportionately more manpower in areas which offer the professional greater financial and socio-economic rewards. By neglecting the responsibility of answering society's needs, a profession stands to lose its status and credibility with the public. Dentistry is no exception to that rule.

This growing wave of social consciousness has touched not only society as a whole but also students who entered dentistry with preconceptions of the dentist's role and lifestyle in society. Many of them find that this role has failed to meet society's needs and may thus have to be changed. On the one hand, the student is faced with the problem of balancing discrepancies created by his predecessors' failure to provide service of comparable high standards in all regions. On the other hand, he realizes that blaming his elders but offering no solution only aggravates the situation and exposes the profession to political and social manipulation by a society that feels it must take matters into its own hands if it is ever to fulfil its own needs.

Government subsidization of dental students who in turn would have to serve in some underserved area in Canada could certainly redress the maldistribution of dental manpower. It would also drastically alter and strengthen the role of the health professional who would then serve an area not of his own choosing. This "new" dental student would be more socially aware, committed as he is to the subsidization-for-service scheme.

But the "change" does not stop there, for along with commitment to government-designated areas come many of the particulars that make the system successful or intolerable. Foremost among these is the length of service required. Having gone this far, no dentist will wish to commit the early and perhaps most important part of his professional years without some assurance that he will be able to practise according to his philosophy. In today's terms, this means preventive dentistry and all its ramifications. Such a set-up requires first class facilities and equipment, well-trained and equally committed auxiliaries, and the means for dental health instruction.

The difficulty in achieving these conditions often deters new graduates from venturing into underserved areas. This, of course, is quite apart from other disadvantages such as personal financial risk, lack of family and home amenities and, for many, the necessity of having to abandon an urban lifestyle. Should governments really wish to ensure dental service of the calibre available to well-served areas, they would have to underwrite the operating cost of such an endeavour. Fees, in all probability, would also require government subsidization.

There still remains the problem of the student who does not wish to embark initially on a clinical career. A fair percentage of graduates now proceed directly into graduate and specialty programs, teaching, research and administration. Yet, by virtue of the fact that they actually "pay" for dental education, governments could exert tremendous influence over the type of student entering dentistry. To support only those headed for a clinical career would discourage a key segment of the dental community. The problem then lies in trying to equate the commitment of the practitioner with a comparable contribution by the graduate who does not proceed directly into practice. Compulsory service for all would only lengthen the period of training, especially for specialists, and might create new shortages in these fields. But to allow these students to "buy out" of the system would simply favour those who were able to pay. Governments will inevitably have a big finger in such a pie; but they should refrain from encroaching upon the autonomy of the profession as long as it meets society's needs.

There may be no universally palatable solution. Compelling anyone to practise in a setting that is not to his liking is distasteful in principle and detrimental to the service. For the sake of the dentist and the public, organized dentistry should retain maximum control over the actual delivery of dental services as long as manpower demands are satisfied. If we cannot meet this challenge, even when all financial risks are eliminated, then dentistry does not deserve the status and respect it enjoys today.

Edwin Yen  
849-56th Ave  
Lachine 610, Que



## Student bursaries and "corps of dentists" can aid underserved areas

The old saying that "the rich get richer and the poor get poorer" can often be applied to the distribution of health personnel. The large cities attract dentists almost to the point of overflow while the rural areas are frequently only marginally served. What can be done about it?

A few years ago the Department of Health of the Province of Ontario established a plan of bursary and practice incentive grants. To date the plan seems to have been successful. I would recommend it to any jurisdiction which is experiencing difficulty in attracting dentists. Details of the Ontario plan may be obtained by writing to R. E. Feasby, Senior Consultant in Public Health Dentistry, Department of Health for Ontario, 7th Floor, 1 St. Clair Ave West, Toronto 195, Ont.

Readers will see from this that I concur with the views of participants at the National Health Manpower Conference held recently in Ottawa. They agreed that government subsidization for dentists is essential if we are to supply proper dental health care to the people in those parts of Canada which are chronically underserved.

The emphasis on subsidization should be by bursaries made available to all students because of their greater mobility. In view of the high costs involved in setting up practice these days, most established dentists are not interested in moving to another location. In my opinion, a student should be given a choice of locations wherever possible. It is also very important that the dentist's wife be reasonably happy in the chosen location.

The right to purchase one's way out of a student bursary should be possible in all such plans, except those offered by the Canadian Forces Dental Services. If a student opts to purchase a release from his obligations, I believe that this entails not only a refund of the money in full but also interest from the time the funds were first received. Otherwise, there may be a tendency on the part of a few individuals to abuse the plan.

At one time the Ontario Dental Association recommended that a "corps of dentists" be established to serve remote areas. These dentists would perform their services in return for a salary paid by the government. It was felt that a fee-for-service concept could not apply because of the time spent in travelling and the possibility of poorer economic conditions prevailing in some areas requiring the service.

A student who commences his dental career away from the tensions of a big city and subsequently returns to the city to practise will probably find upon reflection that his early days were the happiest of his life. Also, with the road and air service available in our country today, there are really very few totally remote areas left.

In this age when everyone is being informed that health care is their right, it behooves us to ensure that people, no matter where they reside, get proper dental care. Second-class care is not good enough. The answer lies in subsidizing of dental students and

other dentists who are willing to serve in the designated areas.

*K. F. Pownall, DDS  
230 St. George St  
Toronto 180*

*The retraining and integration of foreign dentists has long been a problem for licensing boards, dental schools and the profession at large. Doctor K. J. Paynter, chairman of the CDA Council on Education, outlines a remedy that would also serve Canadian dentists who desire or are required to upgrade their qualifications.*

## A Canadian National College of Dentistry

The following resolution from the Association of Canadian Faculties of Dentistry was considered last September by the CDA Executive Council and referred to the Council on Education for study and recommendations:

"Whereas the Association of Canadian Faculties of Dentistry having given consideration to the implications of the new policy of the National Dental Examining Board of Canada whereby graduates of foreign dental schools may now be admitted to the qualifying examinations of the National Dental Examining Board of Canada; and

"Whereas there is likely to be a substantial number of candidates who are unable to meet the required standards of the National Dental Examining Board of Canada and may desire further examination in this country so that they may meet the Board's standards and provincial licensing requirements; and

"Whereas existing dental schools now do not have the physical and other resources to provide the widely varied needs of these individuals for the number involved; therefore be it

"Resolved that the Association of Canadian Faculties of Dentistry express its concern over the problem to the Canadian Dental Association, the National Dental Examining Board of Canada and the provincial licensing authorities, with the recommendation that appropriate steps be taken to establish a training centre or centres for graduates of foreign dental schools who do not meet the minimal requirements for licensure in Canada."

### The problem

Several aspects outlined in the ACFD resolution suggest that traditional methods of dental education and examination are inadequate to resolve the problem, and that a completely new approach to its resolution is indicated. The fact that the ACFD saw fit to



submit its resolution in the first place, and the letters I have received from a number of deans of dentistry, all support this view.

The problem is one of national concern, having no greater significance for one province than for another; therefore the approach to its solution should be national rather than provincial. That is, funding of one or more training centres for graduates of foreign schools should be from national rather than provincial resources, in contrast to the present pattern of support for dental education, which comes from the provinces alone. The educational approach would also have to differ considerably from traditional undergraduate or graduate programs. Each student in this new college would have educational needs that are different from those of other students, and traditional formal course structuring would not satisfy these needs without much waste of time and other resources. Thus a new type of curriculum would have to be established which would require resources that regular dental schools could not supply without a major infusion of funds. The only alternative would be the collaboration of at least seven provinces and 10 universities in order to fill the need without waste — an unlikely event.

A new approach is needed — one that requires the development of an entirely new educational institution, structured to resolve the problem outlined in the ACFD resolution and geared to resolving other educational and licensing problems now facing Canada's dental profession.

### The answer

The suggestion is, therefore, to organize and develop a special educational centre in Canada for re-training or upgrading foreign dental graduates. With the proposed move of the Canadian Dental Association headquarters to the National Health Centre in Ottawa, it would seem desirable to have the new Canadian National College of Dentistry located on that site.

The objectives of such a college would be to provide education, to conduct examinations and to carry out research.

Its educational offerings should upgrade the capabilities of graduates of foreign schools in the specific areas of weakness identified by examination, to the point where the individuals satisfy Canadian standards in all respects. The educational program could also be structured to help retrain or upgrade Canadian dentists who elect to add to their knowledge and skills or who may be required to do so. The latter may be in significant numbers if current interest in periodic re-examining of professionals results in the development of a system to do so.

Because it must carefully assess each student's needs before arranging a program of study and because it must evaluate progress repeatedly, the college will develop considerable experience in designing and conducting examinations. This expertise could be useful to the National Dental Examining Board and the Royal College of Dentists of Canada, should these agencies elect to use it.

An educational institution of this nature will undoubtedly suffer in quality without a viable research program. Moreover, some kinds of dental research are best conducted in a national centre rather than in

universities. The college could concentrate its research on systems of dental health services delivery, testing of therapeutic methods or devices, and research in dental education itself. Such investigations would have to be backed up by other activities of a purely biological or technical character. But the major thrust of the research program would not be oriented in this direction, on the assumption that pure biological or technological research is best carried out in the universities.

### The location

If it were located at the National Health Centre in Ottawa the Canadian National College of Dentistry would be in desirable proximity to the headquarters of the Canadian Dental Association and close to the central offices of the National Dental Examining Board and the Royal College of Dentists of Canada. The same site already contains the head offices of the Canadian Medical Association and the Royal College of Physicians and Surgeons of Canada. It will in the future be the location for three large hospitals and a medical school. With these resources in a city the size of Ottawa, there should be no problem from the standpoint of patient supply.

A nucleus of permanent full-time staff would be needed. Attracting personnel to Ottawa should be no more difficult than obtaining staff anywhere else, and may be considerably easier than in a number of other centres. In addition, some thought should be given to creating an environment in the new college where staff members of existing dental schools could constructively spend time on a rotational basis, as happened in the Science Council of Canada.

The Ottawa location thus seems to be the most advantageous for a *National* College of Dentistry, and for liaison with other national dental and other related agencies, as well as for the development of the kind of educational and research program that would be required. Indeed, Ottawa may be the only place where such an institution could be established in this country.

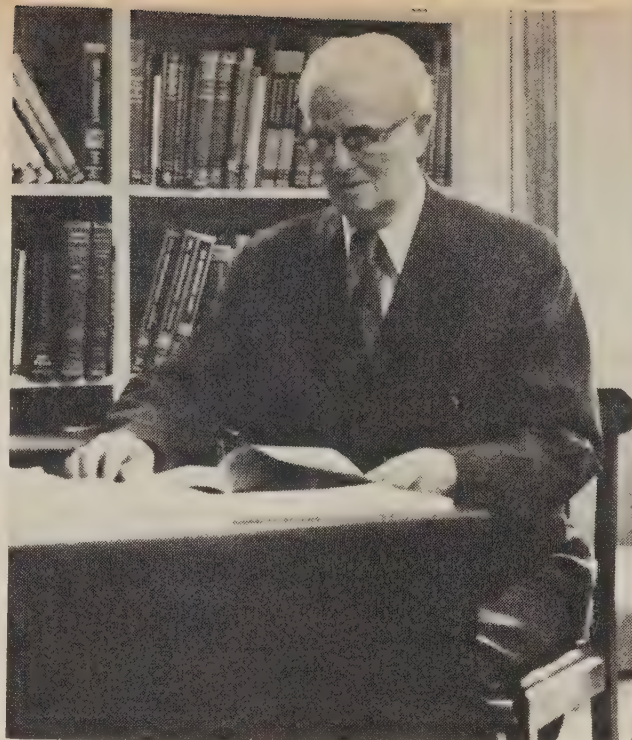
### The next step

Assuming agreement with the principle of creating such a dental school, many questions would remain, of course. Although there are indications that a considerable number of students (say 75-100) might receive training in the college each year, we would need further data to develop plans and estimate capital costs. Potential enrolment would also have a major influence on staff requirements, and therefore on operating budgets. And there still remain the administrative and legislative problems of establishing and funding a national institution through federal action. Such problems could be worked out, however.

Again, assuming the desirability of establishing such an institution as a Canadian National College of Dentistry, the initiative to carry out the next step should be assumed by the Canadian Dental Association.

*K. J. Paynter, Dean  
College of Dentistry  
University of Saskatchewan  
Saskatoon, Sask*





Left: Librarian Colette Gagnon discusses the acquisition of new research material with Lloyd Bowen, CDA's fluoridation officer. Right: Don W. Gullett, former CDA secretary-turned-author, found the library facilities invaluable in researching his book "A History of Dentistry in Canada".

## *CDA Library helps dentists keep pace with change*

The Sydney Wood Bradley Memorial Library is just one of the many services provided by the Canadian Dental Association. But it's fast becoming a highly important one as new developments continue to rock the traditions of dentistry.

Professionals in every facet of the health care field today face an enormous challenge in keeping pace with change in their chosen specialty. Dentists are no exception.

In fact, the field of dentistry has experienced something of an information explosion in recent years. Continuing research has yielded a seemingly endless supply of new data: technological advancements have resulted in a steady influx of new and improved equipment and techniques; increasing emphasis on the concept of total health care has led to an all-out effort to restructure many aspects of our health care delivery systems, including the delivery of dental care. In addition, changing social needs and attitudes are gradually carving out new areas of responsibility for the dentist.

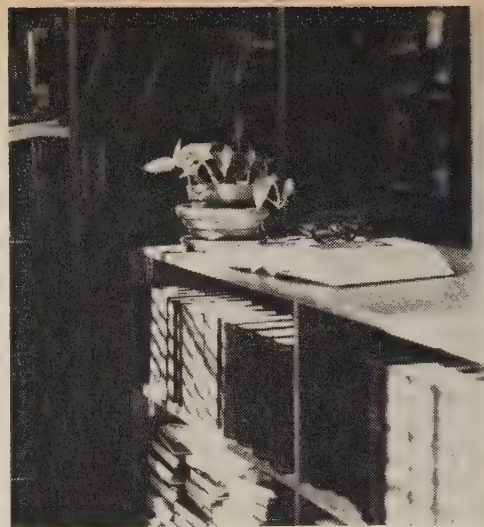
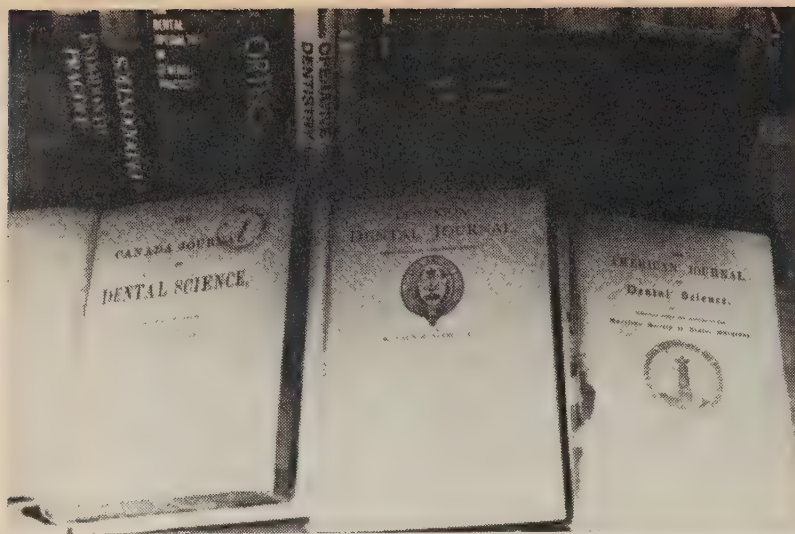
This phenomenon of change is not unique to Canada. Scientists, physicians, dentists and experts in social welfare in countries throughout the world are struggling with the challenge of progress. Much of this experience is being documented — in books, professional journals and periodicals. And most of these are available from the CDA library.

More than 5,500 scientific and technical books, 283 periodicals in French, English and other languages, plus a wide assortment of newsletters are housed in the national library. This collection includes most of the dental books, related texts and periodicals published in the last 20 years and a considerable number of those published earlier.

Although the bulk of material deals directly with the science and practice of dentistry, several sections are devoted to related topics. For example, there is a collection of biographies on figures who have left their mark in the field of dentistry. There is a large medical section containing books on anatomy, physiology, anaesthesia, surgery, biochemistry, public health, even law as it applies to the doctor-patient relationship. Finally, there is a miscellaneous section covering a broad range of subjects in the fringe areas of dental interests. These include such subjects as drug therapy, hypnosis, public relations, creative report writing, psychology and, of course, retirement.

As might be expected, current texts and periodicals are of most immediate use in meeting the needs of CDA members. However, the library also boasts a small but growing collection of rare old books. Among these are a copy of the first volume of the *American Journal of Dental Science* of 1839; Taft's *A Practical Treatise on Operative Dentistry*, 1859; Crowley's *Dental Bibliography: A Standard Reference List of Books*





Selections from the library's collection of rare old books are shown in the foreground (left), providing an interesting contrast to some of the newly acquired modern texts. Right: a quiet, sunlit corner of the library housing a comprehensive and up-to-date reference section. The library is open and supervised each weekday from 9:00 am to 5:00 pm.

on *Dentistry Published Throughout the World from 1536 to 1885*, published in 1885; and Guerini's *A History of Dentistry*, 1909.

The formation of a national dental library more than 20 years ago was, in large part, the realization of one man's dream. Doctor Sydney W. Bradley, an Ottawa orthodontist, was the anonymous benefactor who financed the establishment of the CDA's library when the Association first acquired its own building at 234 St. George Street, Toronto. During his lifetime he took an active interest in its development and made regular monetary contributions, anonymously, for its maintenance.

When he died in February, 1967, Doctor Bradley left a \$50,000 bequest in support of the Association's library, stipulating in his will that it be named the Sydney Wood Bradley Memorial Library.

Visitors to Association headquarters are immediately aware of the existence of a national dental library; it occupies three entire rooms on the main floor of the building. Since its inception the library has grown steadily under the capable direction and supervision of Colette Gagnon, Librarian.

Miss Gagnon takes pride — justifiably so — in the quality of service she is able to give CDA members. A large part of her time is devoted to studying publishers' listings, new acquisition listings from other professional libraries and book reviews. She also has

a standing order with the three top publishers specializing in the production of scientific and technical texts. In this way, Miss Gagnon is able to ensure that the Association's book and periodical collection is kept up-to-date with the best of current professional literature.

The library is open and supervised each weekday from 9:00 am to 5:00 pm. Its services include circulation, reference, cataloguing and reading space. However, services are not restricted to members in the Toronto area or to those who can visit the building. Quite the contrary. Most requests are received by telephone (927-3261, area code 416) or by mail.

The "borrow-by-mail plan" offered by the Association library is of particular value to members practising in areas which are sparsely populated or relatively isolated. Every month requests come in from dentists in the Northwest Territories, Baffin Island, Newfoundland, the Maritimes, Vancouver Island and northern regions of the prairies and Ontario.

Requested publications, if available, are dispatched promptly and may be returned without charge; return postage is prepaid by the CDA.

Catalogues listing the library's holdings are published periodically and are available to members of the Association on request. Lists of the most recent acquisitions are printed in the *Journal of the Canadian Dental Association* to supplement the Catalogue.



The library occupies three large rooms on the main floor of CDA headquarters. A portion of the main reading room is pictured here.



## National Convention

### Swinging social program to highlight Montreal convention

A West Indian steel band, a folkloric dance group sparkling with talent and an orchestra hailed as the pride of Montreal are a few of the social highlights for this year's national convention.

Montreal is the host city for the 1972 CDA convention to be held June 4 to 7 with Les Journées Dentaires du Québec. Convention activities, both social and scientific, will be centered at the Hotel Bonaventure.

Opening ceremonies launching the convention will get underway at 8:00 pm Sunday, June 4 in the Montreal Ballroom. The formal program, including presentation of the Canadian Dental Research Foundation Award, will last about an hour. Then the entertainment begins with dancing to the exciting rhythms of the Exponians, official steel band of Trinidad and Tobago. This group first established its popular reputation at the West Indian Pavilion during Expo 67.

One high point of the opening night program will be the draw for a free trip to Australia for the 1973 Fédération Dentaire Internationale annual session. Only delegates who preregister before April 30 are eligible for this lucky draw. CP Air has offered the prizes, two economy-class tickets to Sydney valued at about \$1,300.

The main event on the social program is the President's Party. It begins at 7:00 pm Tuesday, June 6, with an open reception in the Montreal Ballroom. Dress will be optional. Tickets are available at \$12.50 a person.

The dinner for the President's Party promises to be a spectacular affair, offering appeal to the eye as well as the taste buds.

The dinner will be followed by an exciting floor show featuring Les Danseurs de St-Laurent, a versatile and talented group specializing in folkloric dance. Afterwards there will be dancing

to the music of Steve Michael's Orchestra, one of Montreal's most popular groups.

An added plus for the President's Party is the door prize provided by KLM Royal Dutch Airlines. The lucky winner will get two free tickets to Paris and Amsterdam.

Other events lined up for the social program include a trip to Montreal's famed Blue Bonnets race track to watch fast stepping trotters and pacers compete in exciting races. Delegates may also purchase tickets to see the Montreal Expos in action.

### Hotel rates in Montreal

Four hotels in downtown Montreal—the Bonaventure, Queen Elizabeth, Laurentien and Mt. Royal—will house delegates attending the 1972 national convention. The following schedule of room rates will assist convention registrants in choosing their accommodation.

The Bonaventure, the convention headquarters hotel, offers single and double rooms in standard, medium and deluxe categories at the following rates: single rooms — \$20 to \$24 for standard, \$26 to \$29 for medium, and \$31 to \$33 for deluxe; double rooms — \$28 to \$32 for standard, \$37 for medium, and \$39 to \$41 for deluxe. Twin bedrooms are available at \$34 to \$37 for medium and \$39 to \$41 for deluxe.

The Queen Elizabeth will host meetings of CDA sections and most other groups. Rates for single rooms start at \$22 and double, twin or studio twin rooms range from \$27 to \$50. Parlour and single bedroom suites are also available starting at \$58.

At the Sheraton Mt. Royal single rooms range from \$15 to \$23 and twin rooms range from \$20 to \$28. One bedroom suites are available at \$34, \$39 and \$49. The \$49 suite is suitable for use as a hospitality centre.

Rates for single rooms at the Laurentien Hotel range from \$13 to \$16. Double rooms with double beds are avail-

able at \$17 to \$20 and with twin beds at \$21 and \$22.

Early registration is recommended. The deadline for preregistration is April 30.

### Researcher to discuss problems of dental pulp

Louis J. Baume, professor of dental medicine at the University of Geneva, will discuss "The Clinical Management of Endodontic Problems Based on New Histopathologic Evidence" at the Montreal convention.

Doctor Baume will deliver his presentation in French on Monday, June 5 and in English on Wednesday, June 7.

A native of Switzerland, Doctor Baume graduated from the University of Basle's Faculty of Dentistry in 1939. He obtained his master's degree from the University of California in 1950. Basic research in oral biology, dental education and oral statistics rates as his special field of interest.

Rubber impression materials developed in the mid 1950's have opened up new vistas to the dentist. However, in order to get the best results from these materials, they must be manipulated properly and their drawbacks or limitations recognized.

This note of caution comes from Ralph Barolet, professor of dental materials at Laval University School of Dental Medicine, who will be speaking to the CDA general meeting on the subject of "Criteria for the Evaluation and Selection of Elastic Impression Materials." His presentation will be made in French on Monday, June 5 and in English on Wednesday, June 7.

D. Lorne Catena will provide delegates with some valuable guidelines for interpreting radiographs when he speaks to the CDA's general meeting Wednesday, June 7 on "Radiologic Assessment of the Dentition as it Affects the Practitioner."

Doctor Catena is assistant professor with the Department of Oral Radiology, School of Dental Medicine, University of Connecticut.



Dentists will also get some sound financial advice from Rod L. DeCourse-Ireland and D. O. Jones when they speak to the CDA's general meeting on "Investments for the Professional Man."

The hour-long session is scheduled for 1:30 pm on Monday, June 5.

Messrs. DeCourse-Ireland and Jones represent the Montreal office of the A. E. Ames Investment Co Ltd.

Six dentists, each representing a different approach to setting up a practice, will take part in a panel discussion on Wednesday afternoon, June 7. Topic for the discussion is "Different Concepts in Dental Office Setup."

Rod Moran, who operates a solo practice in Toronto, will act as moderator. Other panel members are: Ron Federchuk, who works with one associate in Oakville; Fred Reid, who works with six associates in Vancouver; Carl Dexter, part of a Halifax partnership; Victor Drenfeld, who operates a two-office practice in Toronto; and Yves Dufresne, whose practice in Three Rivers, Que, involves the use of a number of auxiliaries.

## The Association

### CDA staff changes announced



Peter J. Dawes



J. H. Robinson

Peter J. Dawes, of Toronto, has been appointed production manager for the *Journal of the Canadian Dental Association*. W. G. McIntosh, CDA executive director, has announced. Mr. Dawes, who joined the Association in December, worked previously for MacLaren Advertising and the *Daily Commercial News*.

J. H. Robinson, of Port Credit, Ont, has been named manager, advertising sales and convention exhibits. Mr. Robinson was formerly an account supervisor with the Maclean-Hunter Publishing Company Limited.

Messrs. Dawes and Robinson have taken over duties formerly handled by Gordon V. Allen Publications.

## Canada and the Provinces

### Manitoba dentists approve peer review principles

Manitoba dentists have agreed to accept more stringent policing of their services as the price of ridding the profession of members who fail to maintain an acceptable level of competence.

The members of the Manitoba Dental Association, which held its annual meeting in Winnipeg January 22-23, approved the principle of two resolutions calling for increased policing and mandatory upgrading of their services.

Under one resolution, a peer review committee would be established with the power to investigate any dentist whose performance becomes the subject of two complaints. The other resolution calls for mandatory upgrading of services and could become law on the profession by this summer.

"If we get a complaint from the public or from another dentist, we will call up the member and let him know he is to be investigated," said an MDA spokesman as he explained how the peer review committee might work.

If the committee felt that a dentist could benefit from additional training, it would urge him to seek instruction from a dental school.

The committee would have no actual disciplinary authority, but its findings would be turned over to the Board of the Manitoba Dental Association.

### CDA Retirement Savings Plan

Unit values of the Canadian Dental Association Retirement Savings Plan stood as follows on February 29, 1972:

*Fixed Income Fund* \$12.888;

*Common Stock Fund* \$27.588.

Total assets (market value) of the plan were \$12,282,734.06.

The following portfolio sale occurred during the preceding month: 5,000 shares Commonwealth Holiday Inns.

Section 146(5) of the Income Tax Act permits tax free contributions of up to 20 per cent of earned income or \$4,000, whichever is less, to a personal retirement savings program.

The Royal Trust Company, trustee of the CDA Retirement Savings Plan, offers two separate investment media: a fixed income fund and a common stock fund. Contributions may be allocated wholly or partly to the funds of the contributor's choice. Transfers between funds are allowed without penalty.

The fixed income fund, confined to guaranteed government bonds, other

guaranteed fixed income securities, debentures, preferred shares and other fixed income securities, offers excellent income with maximum security. The common stock fund, comprising Canadian and carefully selected American and other foreign stocks, has capital growth as its main objective.

No charges or commissions are payable on joining or withdrawing from the plan.

For further information please write to CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto 180, Ont.

## International Items

### Canadian hygienists at international symposium

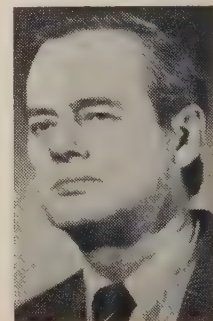
Sharon French, Ottawa, immediate past president of the Canadian Dental Hygienists Association, and Rosalyn Froehlich, Charlottetown, are among the featured essayists at the Third International Symposium on Dental Hygiene being held in London April 21-23. The symposium is sponsored by the American Dental Hygienists Association.

Mrs. French will speak on "The Dental Hygienist and the Canadian Health Service," and Mrs. Froehlich will discuss "The Role of the Dental Hygienist in Operative Dentistry." The symposium is open to all members of the dental and related professions. The registration fee for the three day meeting is \$25. Additional information may be obtained from the American Dental Hygienists Association, 211 East Chicago Ave, Chicago, Illinois 60611, USA.

## Dental Organizations

### Manitoba dentists elect Doctor Snidal

M. J. Snidal, Winnipeg, was installed as president of the Manitoba Dental Association January 22, succeeding A. J. Shinoff, also of Winnipeg.



M. J. Snidal



Elected with Doctor Snidal was S. M. Claman, Winnipeg, as vice-president and registrar.

E. G. Derrett, Winnipeg, and A. J. Shinoff were named representatives for District 1. S. A. Heschuk, Dauphin, and G. M. Nowazek, Brandon, are representatives for District 2.

### **Hypnosis workshop set in Toronto, May 10-12**

The Ontario Chapter of the American Society of Clinical Hypnosis will schedule a regional workshop at the Royal York Hotel, Toronto, May 12-14. The workshop director will be Maurice MacDowell of the ASCH. Some members of the Ontario Chapter will also serve on the faculty. Tuition fee: \$125.

For further information, please write to: F. D. Nowlin, Executive Secretary, American Society of Clinical Hypnosis, 800 Washington Ave SE, Minneapolis, Minnesota 55414, USA.

### **Doctor Daly elected in Newfoundland**

C. P. Daly, St. John's, was recently elected president of the Newfoundland Dental Association. He succeeds G. M. W. Hewitt of Gander.

W. J. Dwyer, St. John's, and R. D. Sexton, Corner Brook, were named first and second vice-presidents respectively. R. F. Furlong is the treasurer and B. L. Bowden continues as secretary. Both are from St. John's.

### **Toronto class reunion at Ontario dental convention**

The University of Toronto class of 1952 will hold a twentieth anniversary reunion May 15 at the Donalda Golf and Country Club in Don Mills. A reception, followed by dinner, begins at 6:30 pm.

Further details are available from R. E. Echlin, 992 Birchwood Ave, Burlington, Ont.

## **Dental Education**

### **Doctor Goldberg to join UWO oral surgery department**

A 1969 McGill University graduate, Hy Goldberg, will join the Faculty of Den-



Hy Goldberg

tistry at the University of Western Ontario, it has been announced. Doctor Goldberg, who is completing a two year residency program at Cook County Hospital in Chicago, takes up his new appointment as assistant professor in the UWO Department of Oral Surgery on July 1.

After earning a DDS from McGill University, Doctor Goldberg did graduate work in oral surgery at Tufts University from which he received his diploma in 1970.

### **Dental education conference to receive federal grant**

National Health and Welfare Minister John Munro has announced a \$16,089 health grant to the Canadian Dental Association for a national conference on dental education.

The conference, which will take place in September, will be sponsored by the CDA Council on Education. It will discuss methods of offering continuing dental education programs for general practitioners, specialists and other dental health groups. The conference agenda includes the future development of dental education programs and dental manpower resources.

The responsibilities of dental associations, licensing bodies and governments in organizing and administering continuing dental education programs will also be discussed.

The project was endorsed by the CDA Board of Governors at the national convention in 1971.

## **Fluoridation**

### **CDA reaffirms fluoride safety**

The Canadian Dental Association has reacted swiftly to a National Research Council study claiming possible hazards arising from fluoride overexposure. The report, by J. R. Marier and Dyson Rose of Ottawa, was released on February 15. It suggested that man may be adding more fluorides than he should to that

already naturally occurring in his environment and claimed that people are probably exposed to more environmental fluorides than has been suspected. The study alleged that there is "a large scientific gap as to what effect that could have."

The report also implicated fluoridated water and fluoride dentifrices as sources of fluoride and claimed that studies to monitor the total amount of fluoride taken in by humans are almost non-existent.

Responding in a press release issued on February 16, the CDA said it was cognizant of the NRC study and had requested a copy for evaluation.

The Association's statement also expressed concern over the possible undermining of public confidence in the safety of water fluoridation and the use of therapeutic fluoride dentifrices. It stressed that more than 40 years of exhaustive experimentation and documented experience have disclosed no proven evidence of ill effects or human hazards.

The statement reaffirmed the Canadian Dental Association's unqualified support for these important public health measures.

### **No alternative to fluoridation, say paediatricians**

There is no suitable substitute to fluoridation of communal water low in fluoride, according to the Canadian Paediatric Society. "All Canadian municipal water supplies should therefore be adjusted to contain 0.7 to 1.0 ppm fluoride."

A statement by the CPS Nutrition Committee also recommends the use of fluoride supplements, in conjunction with an education program, by all children under the age of 14 where the water supply contains less than 0.5 ppm fluoride.

The Canadian Paediatric Society has taken sharp issue with opponents of fluoridation who contend that by chlorinating water man surmounts a threat of nature while by the addition of fluoride, man "medicates" water. "This objection is totally invalidated if one accepts the fact that fluoride is an essential trace element for optimal dental health. Since fluoride is abundant in some waters and deficient in others, man merely restores the benefits of nature by fluoridation."

The statement also comments on economic aspects of fluoridation in these words: "In times of economic stress such as ours, there is no room and no time to argue concerning the cost of fluoridation when one realizes that the cost of dental care for children who have drunk fluoridated water from infancy is less than half that for those who have not."



## Economics

### Ontario raises practice incentive grants

Increased incentive grants are being offered under Ontario's Health Resources Development Plan for dentists who are willing to practise in underserved areas of the province. Dentists who establish a practice in an approved area will be paid \$14,000 if that area is in southern Ontario, and \$18,000 in northern Ontario. The grants are payable over a four year period.

As an alternative, guaranteed minimum net annual professional incomes of \$23,000 in southern Ontario and \$26,000 in northern Ontario are available.

Thirty-five dentists now practise in underserved areas as a result of the scheme. Twelve are Czechoslovak dentists who received additional training in 1969-70 at the University of Western Ontario. Another 13 are dentists who received bursaries during their undergraduate training.

Seven dentists have established practices in approved localities and three

are serving on mobile units in remote areas. The remainder are practising in eastern or central Ontario.

The Ontario government also offers \$3,000 bursaries to selected dental students in each of the two final undergraduate years at Canadian dental schools. Fifty-four bursaries have so far been awarded to 35 students.

### American dentists must post fees

Under phase 2 of President Nixon's price-wage stabilization program, American dentists must display a sign in a prominent place in their offices indicating that a list of their fees for principal services is available. The posted sign also must indicate the location of that fee list.

Additionally, dentists and other individual providers of health services must have available for "public inspection" a list of the fees they charged for principal services provided during the period from July 16 through August 14, 1971, and the increases in those fees since August 14. A copy of that list must be furnished to a representative of the US Internal Revenue Service or the US Price Commission upon request.

58 per cent, were adults and 800, or 42 per cent, were children up to and including those 18 years of age.

A further breakdown of the dentist's annual workload, as detailed in the 1968 survey of dental practice conducted by the Canadian Dental Association, reveals that 1,200 patients (64 per cent of the total number of patients seen) were seen on a "regular recall" basis. The regular recall patient load consists of 560 children and 660 adults.

One half the dentists, however, had seen less than 1,500 patients during the year and less than 900 of these were on a regular recall basis.

The average number of patient appointments per dentist was 3,900 or approximately two for each individual patient seen.

Dentists in Saskatchewan chalked up the highest number of patients seen annually with an average total of 3,000. Quebec dentists were at the other end of the scale, averaging less than 1,400 patients per year.

In all provinces except Newfoundland and Prince Edward Island, a majority of the total patients were reported to have been seen on a regular recall basis.

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## FOURTH NATIONAL SURVEY CHARTS PATTERNS OF PRACTICE

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In 1969, a survey of dental practice conditions during 1968 was undertaken by the Canadian Dental Association. This was the fourth such survey conducted by the CDA, the three previous ones having been carried out at five year intervals in 1953, 1958 and 1963.

These periodic surveys provide valuable information on dental manpower, economics and dental practice conditions. In addition, they enable the Association to establish not only an historical record of data and basic statistics pertaining to the profession, but also provide a means of studying changes in patterns of practice.

Statistical data from these surveys constitute a major source of information for answering queries of all sorts from dentists, students, associations, governments and the public. The survey is also of great value in estimating the present and future supply of dental services, thereby contributing significantly to the planning of future dental care.

The questionnaire for the 1968 survey had greater depth and scope than those used in previous studies, but it included questions similar to those in earlier surveys in order to establish trends in dental practice and to detect any changes in traditional patterns. New questions were also included, touching on areas of interest not covered in any of the previous surveys.

A complete account of all the data resulting from this fourth national survey will soon be published in a booklet in both French and English, and will be available, on request, from the Canadian Dental Association.

The various chapters will cover such topics as: incomes from private practice and salaried employment; gross incomes, expenses and net incomes from private practice related to the number of dental chairs, auxiliary employees, hours worked and degree of busyness; fees and how they are determined, plus a host of other subjects dealing with the day-to-day operation of a dental practice.

Since the survey data are based on an analysis of the questionnaires completed and returned by 33 per cent of the total number of dentists across Canada, individual practitioners will find it useful to compare their own practices or salaried positions with averages for dentists in their area, age group, and specialty.

### Average dentist handles 3,900 appointments per year

The average dentist in Canada estimated that he and his employees treated 1,900 patients during 1968; 1,100, or

## Research

### Bone transplant used in advanced periodontal disease

Bone loss caused by periodontal disease may be corrected in some cases by using bone grafts from the patient's hip, according to a University of Colorado scientist.

Speaking at the American Dental Association's scientific session last October, R. G. Schallhorn of Denver said this highly experimental technique has been successfully tested on a number of patients. In all cases observed over a two year period the bone marrow when removed from the ilium or crest showed rapid regeneration in the implant sites.

"Utilizing iliac transplants in a typical dental office environment is not only feasible but, because it eliminates the need for the dentist to procure autogenous donor material during periodontal surgery, also simplifies the dental procedure and reduces the chair time required for transplant therapy," he added.

Doctor Schallhorn said the procedure can be handled in several ways. One method is to have the hip marrow removed in a physician's office or at a hospital on an outpatient basis. The bone marrow is then either refrigerated if the implant is delayed for up to one week, or frozen if the grafting does not take place for months.

In some cases the bone is taken from the patient's hip in the dentist's office



and immediately implanted in the jawbone. Dental researchers are now studying the possibility of finding other suitable substitute materials, he added.

### Researchers report progress in curbing recurrent decay

Dental scientists are coming closer to solving the problem of preventing recurring caries, according to a University of Miami dentist.

For more than two decades researchers have been exploring ways of finding new dental restorative materials which would stop microleakage, according to R. E. Going of Gainesville, Fla.

Addressing the American Dental Association's scientific session last October, Doctor Going said that some composite resin materials "are able to seal margins better than the unfilled resins, over an increasingly prolonged period."

However, he cautioned, they have not displayed any self-sealing action with aging as is the case with the conventional silver amalgam fillings.

He noted that the sealing ability of materials like silver amalgam and silicate cement is initially poor. Other restorative materials like unfilled resins provide a good initial seal. As silver amalgam and silicate cement restorations age in the mouth their ability to seal the cavity walls improves and microleakage diminishes.

Virtually all studies indicate that the "margins of restorations are not fixed inert borders but rather dynamic microcrevices which contain a busy traffic of ions and molecules," he explained.

"While much has been accomplished over recent years, a great deal remains to be done for a more comprehensive understanding of the microleakage phenomenon. The electron microprobe or the scanning electron microscope coupled with an x-ray detector may hold some future in providing answers to the many remaining questions," he added.

### New method for bonding acrylic teeth to denture base

Scientists at the US National Bureau of Standards have developed a new method of bonding plastic teeth to prevent their dislodgement from the plastic denture base. The teeth are wetted with a solution of equal parts of methylene chloride and a cold-curing methyl methacrylate monomer for five minutes.

The new system is far simpler than the current practice of cutting grooves into the teeth for mechanical retention and then wetting the teeth with a monomer. It also provides a stronger bond. Extreme stresses applied in laboratory tests made the teeth crack but did not fracture the tooth-denture bond.

### Space-age orthodontic wire

A new wire with unique metallic properties is being used for orthodontic treatment at the University of Iowa.

G. F. Andreasen, head of the university's orthodontic department, says the wire, called nitinol, consists of a nickel-titanium alloy with a small amount of cobalt to make it harder and stiffer.

Ordinary stainless steel orthodontic wire deforms as it twists and bends and must therefore be replaced frequently. Nitinol wire returns to approximately 95 per cent of its original shape, and is much more corrosion-resistant than stainless steel wire.

A cobalt-free variant also shows promise of being useful. This alloy has the unusual property of an elastic memory. When the wire is stretched, bent or otherwise deformed at a low temperature, it returns to its original shape and length when heated.

The temperature at which the wire "remembers" its original configuration, called its transition temperature range (TTR), is determined by the exact proportions of nickel and titanium in the alloy.

The property depends on two different molecular bonds present in the metal. A weak bond exists below the TTR making the wire relatively easy to deform. Above the TTR, the molecular bond becomes strong and the wire is difficult to deform.

Doctor Andreasen hopes to use nitinol as a self-tightening wire to straighten teeth. The process would work like this:

The orthodontist takes a length of cold wire, say 10 cm, and stretches it so that after the load is removed, it is 11 cm long. The wire is then installed in the mouth. As the nitinol temperature is raised by body heat to a level above the TTR, the elastic memory is triggered and the wire attempts to contract from 11 to 10 cm, exerting forces that act to straighten teeth or close the space between them.

Dentists and engineers are now testing nitinol wire to determine how the force varies during application. They wish to find the particular alloy which has a TTR between room temperature and the temperature in the mouth, and to see how sensitive the wire is to changes in mouth temperature which are brought about by drinking warm and cold liquids. Also, if the cobalt-free wire is to be used by orthodontists, they must know if there will be time to attach the wire in the mouth before it begins contracting.

Preliminary tests show that the mechanism takes about five minutes to activate. If the nitinol wire fulfils expectations, it may eventually eliminate the need for much of the rubber bands, springs and plastic elastics orthodontists now use.

Doctor Andreasen notes that nitinol's

elastic memory which causes the permanently deformed wire to shrink when heated is particularly strange because wire generally expands when heated. A common use of the elastic memory property is in the installation of bicycle spokes.

### Periodontal problems in pregnancy proved temporary

Research by University of Pennsylvania dentists shows that even though pregnancy does somehow increase susceptibility to periodontal disease, usually the gums have returned to normal about six months after the mother gives birth.

A study comparing pregnant and non-pregnant women over a two year period showed that in pregnancy horizontal tooth mobility starts to increase about the third month, reaches a peak in the sixth month, begins to lessen at the ninth month, and returns to normal about six months after childbirth.

At the end of the two year period, mobility in both groups of women had increased equally but slightly.

Another finding was that the considerable increase in gingivitis observed in the pregnant women followed a similar time course.

After two years, both groups of women were similar in the amount of plaque and calculus, in the degree of inflammation, and in the depth of periodontal pockets.

### Deaths

Fenech, Louis Joseph. 68. Windsor, Ont. University of Toronto, 1931. 5-2-72. Survived by Mrs. Gregory Mordin, Mrs. Samuel Nehra and Mrs. Michael Bough (daughters); Mrs. Grace Butler (sister); and nine grandchildren.

Kingman, Douglas Henry Ross. 50. WilLOWdale, Ont. University of Toronto, 1952. 3-2-72. Survived by Helen (wife); Grant and Daryl (sons); Kenneth and Donald (brothers); and Mrs. R. Jones (sister).

MacKenzie, Roderick Murray. 69. Sidney, BC. North Pacific College, University of Oregon, 1924. 22-1-72. Associate member CDA.

McGowan, Edmund Stanley. 79. Toronto. Royal College of Dental Surgeons of Ontario, 1918. 10-2-72. Survived by Loretta (wife); John, Fred and Leonard (brothers); and Mrs. Martin Heavener (sister).

Wigle, Ivan James. 89. Hamilton, Ont. Royal College of Dental Surgeons of Ontario, 1909. 8-2-72. Survived by Nick and James B. (sons) and five grandchildren.



## Congrès national

### Le congrès de Montréal se distinguera par un programme social dans le vent

Un "Steel band" des Antilles, un groupe de danseurs folkloriques plein de talent et un orchestre qui est la fierté de Montréal: ce ne sont là que quelques-unes des attractions qui feront du congrès de cette année une manifestation à ne pas manquer.

Montréal accueillera le congrès 1972 de l'Association Dentaire Canadienne qui se tiendra du 4 au 7 juin, avec les Journées Dentaires du Québec. Les activités sociales et scientifiques seront centralisées à l'hôtel Bonaventure.

Les cérémonies d'inauguration du congrès commenceront à 20h, le dimanche 4 juin, dans la salle de Bal Montréal. Le programme officiel, y compris la présentation du prix de la Fondation canadienne pour la recherche dentaire, durera à peu près une heure. Ensuite, on se distraira, avec spectacle et danse au rythme endiablé des Exponians, "Steel band" officiel de Trinidad, Tobago, qui se sont fait connaître au pavillon des Antilles, à l'Expo 67.

L'un des clous de la soirée d'ouverture sera le tirage au sort d'un billet gratuit pour l'Australie lors de la réunion annuelle, en 1973, de la Fédération dentaire internationale. Seuls les délégués qui se seront inscrits à l'avance, avant le 30 avril, auront le droit de participer à cette loterie. C'est CP Air qui a offert les prix: deux billets pour Sydney, en classe économique, d'une valeur d'environ \$1,300.

La manifestation principale du programme social sera évidemment la soirée du président. Elle débutera à 19h, le mardi 6 juin, avec une réception libre dans la salle du Bal Montréal. La tenue de soirée est facultative. Les billets seront en vente à \$12.50 par personne.

Le dîner prévu promet d'être spectaculaire et satisfiera l'oeil aussi bien

que le goût. Il sera suivi d'un spectacle donné par les danseurs du St-Laurent, groupe de danse folklorique plein de talent. Ensuite, danse aux sons de l'orchestre Steve Michael qui est l'un des plus populaires de Montréal.

De plus, les billets d'entrée à la soirée du président seront tirés au sort. Le prix est offert par la compagnie aérienne KLM, et l'heureux gagnant aura droit à deux billets gratuits à destination de Paris/Amsterdam.

Le programme social comprendra en outre une visite au célèbre "Blue Bonnets" de Montréal où les participants assisteront à des courses passionnantes entre ces trotteurs rapides.

Ils pourront se procurer également un carnet de billets de baseball pour aller voir les Expos de Montréal en action.

### Les tarifs hôteliers à Montréal

Quatre hôtels du centre de Montréal — le Bonaventure, le Reine Elizabeth, le Mt-Royal et le Laurentien — logeront les délégués venus assister au congrès 1972. Le barème ci-dessous aidera les participants à fixer leur choix.

Disons d'abord que c'est au Bonaventure que le congrès établira ses quartiers généraux. Les chambres pour une ou deux personnes sont offertes en catégories standard, moyenne et de luxe et aux tarifs suivants: une personne — de \$20 à \$24 pour la catégorie standard, de \$26 à \$29 pour la catégorie moyenne et de \$31 à \$53 pour la catégorie de luxe; deux personnes — de \$28 à \$32 pour la catégorie standard, \$37 pour la moyenne et de \$39 à \$41 pour la de luxe. Le tarif des chambres à deux lits est de \$34 à \$37 dans la catégorie moyenne et de \$39 à \$41 dans la catégorie de luxe.

Les réunions des différentes sections de l'ADC et de la plupart des autres groupes se tiendront au Reine Elizabeth. Le tarif des chambres pour une personne est à partir de \$22 et celui des chambres à deux personnes, à un ou deux lits, ainsi que des chambres-studios, varie entre \$27 et \$50. Les ap-

partements salon-et-chambre sont offerts à partir de \$58.

A l'hôtel Sheraton Mt-Royal, les chambres pour une personne coûtent de \$15 à \$23, tandis que les chambres à deux lits varient entre \$20 et \$28. Les appartements avec une chambre à coucher sont offerts à \$34, \$39 et \$49. L'appartement de \$49 peut aisément servir aux réceptions.

Le prix des chambres pour une personne à l'hôtel Laurentien varie entre \$13 et \$16. Les chambre pour deux personnes vont de \$17 à \$20, pour les chambres à un seul lit, et de \$21 à \$22 pour les chambres à lits jumeaux.

La date limite, pour retenir les chambres, est le 30 avril, mais il est recommandé de s'y prendre plus tôt si l'on veut profiter du meilleur choix.

### Des représentants de la FDI prendront la parole au petit déjeuner

Des représentants de la Fédération dentaire internationale prendront la parole à l'occasion d'un petit déjeuner à l'hôtel Reine Elizabeth, le mardi 6 juin à 8h du matin.

Leurs commentaires porteront sur le congrès dentaire mondial de 1972 qui se tiendra à Mexico et sur l'offre du Canada d'éberger à Toronto le congrès de la FDI de 1977, en conjonction avec celui de l'ADC. Ce serait la première réunion conjointe des deux organisations.

Les dentistes canadiens assisteront nombreux au congrès de 1972 à Mexico pour présenter officiellement l'offre de notre pays de recevoir l'assemblée de la FDI en 1977.

Les délégués pourront se procurer les billets pour le petit déjeuner "continental" au bureau d'inscription ou à la porte. Ils se vendront à un prix nominal, s'ils ne sont pas complètement gratuits.

### Les orateurs des Forces canadiennes couvriront toute une gamme de sujets

Un programme couvrant toute la journée et présenté par le service dentaire des Forces canadiennes le mardi 6 juin couvrira toute une gamme de sujets pour répondre aux besoins des praticiens généraux d'aujourd'hui.

Le Lt-Col P. S. Sills, inaugurera la journée militaire d'éducation continue, à 9h, dans l'hôtel Bonaventure. Son sujet sera "La conception du dentier partiel amovible".

En même temps, le Col W. R. Thompson et le Lt-Col A. G. Andrews traiteront de la chirurgie buccale, y compris le diagnostic, l'anesthésie, et les complications opératoires et post-opératoires.



Le Maj. J. F. Begin parlera de "l'éducation et de la motivation dans la pratique" et il sera suivi à 10h15 par le Maj. L. A. Reynolds qui traitera des "principes de la thérapeutique périodontale".

Le Maj. N. H. Andrews fera un exposé sur "la thérapeutique périodontale dans la pratique générale".

Le Maj. Andrews est chargé de cours de périodontologie à l'Université Dalhousie.

Le Maj. J. O. L. Bourget parlera de "la biologie de la pulpe" et le Maj. H. J. Marion de "l'orthodontie préventive et curative". Ces séances seront en français.

Finalement, le Col J. N. Wright traitera de "la pathologie buccale dans la pratique quotidienne." Et le Maj. A. G. Taylor parlera aux délégués de "l'état dentaire des habitants de l'île de Pâques". En 1964, un groupe de chercheurs partit d'Halifax pour s'occuper d'un projet à l'île de Pâques et le Maj. Taylor était le représentant dentaire de l'expédition.

### **Le traitement chirurgical de la pulpe dentaire sous une forme simplifiée**

"La simplification du traitement chirurgical de la pulpe dentaire" est le sujet choisi par le Dr Isadore Wolch de Winnipeg pour le cours pratique qu'il donnera le mercredi après-midi, 5 juin.

Le Dr Wolch, professeur adjoint et chef de la section d'endodontie à l'Université du Manitoba, est président de l'Académie canadienne d'endodontie.

Le Dr D. Lorne Catena offrira aux dentistes des directives utiles pour l'interprétation des radiographies lorsqu'il s'adressera au congrès national, le mercredi 7 juin. Il traitera de "l'évaluation radiologique de la dentition du point de vue du praticien".

Le Dr Catena est professeur adjoint à la section de radiologie buccale de l'Ecole de médecine dentaire, au Centre médical de l'Université du Connecticut.

Six dentistes, chacun présentant une manière différente de voir l'organisation du cabinet dentaire, prendront part à un débat dans l'après-midi du mardi 7 juin. Le sujet à l'étude sera "l'organisation du cabinet dentaire".

R. L. Moran, qui dirige seul un cabinet à Toronto, jouera le rôle d'animateur. Les autres membres du panel seront: R. K. M. Federchuk qui travaille avec un seul associé, à Oakville, Ont; J. F. Reid, qui partage un cabinet avec six autres praticiens de Vancouver; C. E. Dexter, pratiquant en association à Halifax; V. N. Drenfeld dont la pratique comprend deux cabinets à Toronto, et Yves Dufresne qui emploie plusieurs auxiliaires dans son cabinet de Trois-Rivières.

Les délégués recevront d'excellents conseils sur la gestion de leurs finances

alors que Rod L. DeCourse-Ireland et D. O. Jones adresseront leur causerie "les placements et les professions libérales" à l'assemblée générale de l'ADC.

Cette séance, longue d'une heure, aura lieu le 5 juin, à 13h30.

MM. DeCourse-Ireland et Jones représentent le bureau de Montréal de la société A. E. Ames Investment Co Ltd.

### **Programme dentaire de l'ADC dans les Caraïbes**

Depuis juin 1970, un certain nombre de dentistes canadiens ont offert leurs services à court terme dans les pays en voie de développement, dans le cadre du programme dentaire des Caraïbes de l'Association dentaire canadienne.

Les délégués au congrès de Montréal auront l'occasion de se renseigner sur ce programme intéressant et G. E. Burgman, président du comité de sélection, leur expliquera comment il est organisé. Cette séance est prévue pour le lundi 5 juin.

Le Dr Burgman, diplômé de l'Université de Toronto, exerce à Niagara Falls depuis 1949. Il est actuellement vice-président du Collège royal des chirurgiens-dentistes de l'Ontario.

### **Un chercheur suisse parlera des problèmes de la pulpe dentaire**

Le Dr Louis J. Baume, professeur de médecine dentaire à l'Université de Genève, parlera au congrès de Montréal, des traitements endodontiques basés sur les données histopathologiques nouvelles.

Le Dr Baume présentera sa communication en français le lundi 5 juin et en anglais le mercredi 7.

Né en Suisse, le Dr Baume reçut son diplôme à la Faculté dentaire de l'Université de Bâle en 1939. Il obtint sa maîtrise à l'Université de Californie en 1950. Il s'occupe tout particulièrement de biologie buccale, d'éducation dentaire et de statistiques dentaires.

Les matériaux d'empreinte élastiques mis au point vers le milieu des années 50 ont ouvert de nouvelles perspectives pour les dentistes. Si l'on veut obtenir les meilleurs résultats possibles de l'usage de ces matériaux, il faut néanmoins les manipuler convenablement et connaître également leurs inconvénients et leurs limites.

Cette mise en garde émane du Dr Ralph Barolet, professeur à l'Ecole de médecine dentaire de l'Université Laval, où il donne un cours sur les matériaux dentaires. Il traitera à l'assemblée générale de l'ADC des "critères pour l'évaluation et le choix des matériaux d'empreinte élastiques". Il fera son exposé en français le lundi 5 juin et en anglais le mercredi 6.

## **Le Canada**

### **Les dentistes du Manitoba acceptent le principe d'un comité de discipline**

Les dentistes du Manitoba ont accepté un contrôle plus strict de leurs services comme moyen de débarrasser la profession des membres qui ne maintiennent pas un niveau acceptable de compétence.

Les membres de l'Association dentaire du Manitoba qui tenaient leur assemblée annuelle à Winnipeg les 22 et 23 janvier dernier, ont approuvé le principe de deux résolutions, l'une demandant un contrôle accru des services et l'autre l'amélioration mandataire de ces mêmes services dentaires.

La première résolution viserait à établir un comité de discipline professionnelle qui aurait pouvoir d'enquêter auprès de tout dentiste qui, dans l'exercice de ses fonctions, aurait fait l'objet de deux plaintes. La seconde résolution vise l'amélioration mandataire des services et pourrait bien passer au stade de loi régissant la profession d'ici l'été prochain.

"Si nous recevons une plainte de la part du public ou d'un autre dentiste, nous appellerons le membre en question et lui ferons savoir qu'il fera l'objet d'une enquête, "de déclarer un porte-parole de l'ADM en expliquant la façon dont s'y prendrait ce nouveau comité de discipline professionnelle.

Si le Comité se rendait compte qu'un dentiste aurait intérêt à suivre des cours de formation supplémentaire, il le pousserait à s'inscrire à une faculté dentaire.

Le comité n'aurait cependant aucune autorité disciplinaire réelle mais le fruit de ses enquêtes serait confié au Bureau de l'Association dentaire du Manitoba.

### **Transformations au ministère fédéral de la Santé**

Le 17 janvier, M. John Munro, ministre fédéral de la Santé annonçait une série de transformations importantes au sein du ministère national de la Santé et du Bien-être.

La section santé du ministère a été divisée en trois nouvelles branches: Protection de la santé, Programmes de santé et Services médicaux. A la tête de chacun de ces services on retrouve respectivement les sous-ministres adjoints A. B. Morrison, J. L. Fry et J. H. Wiebe.

Le Service de Protection de la santé est constitué par la fusion de trois divisions: l'ancienne division des Aliments et Drogues, la division de la Santé de l'environnement et l'ancien Centre canadien des maladies conta-



gieuses de même que par les divisions d'épidémiologie et de nutrition. Ce nouveau service compte six unités. Il s'agit de: Aliments, Drogues, Santé de l'environnement, Centre laboratoire pour le contrôle des maladies contagieuses, Opérations extérieures et Services administratifs.

La section des Programmes de santé remplace l'ancienne section des Ressources de l'Assurance-maladie. La plupart des conseillers, comprenant le conseiller en santé dentaire du ministère ont été affectés à cette section où ils pourront fournir leurs services de façon interne et externe.

La section des Services médicaux continuera à s'occuper davantage des Indiens des provinces ainsi que de tous les habitants du Yukon et des Territoires du Nord-Ouest en leur assurant le maximum de services de santé. A cause de son rôle de gardien de fournitures médicales, le Service d'urgence de santé a aussi été affecté à la section des Services médicaux.

### **Le traitement des mineurs et "l'âge nubile"**

Les dentistes se rappelleront que quiconque traite un mineur n'ayant pas l'âge nubile (spécifié par la province dans laquelle le traitement est effectué) sans le consentement de ses parents, contrevient à la loi.

L'âge nubile varie de 21 ans à l'Île-du-Prince-Édouard, au Nouveau-Brunswick, au Québec et au Yukon, à 18 ans en Alberta, au Manitoba et en Ontario. Il est fixé à 19 ans en Colombie-Britannique, en Saskatchewan, à Terre-Neuve, en Nouvelle-Écosse et dans les Territoires du Nord-Ouest.

L'Association Médicale Canadienne a récemment demandé à l'ancien Ministre de la Justice John Turner de prendre des mesures visant à uniformiser l'âge nubile à travers le Canada. En faisant remarquer qu'il s'agissait là d'un domaine relevant des provinces, M. Turner a pressé l'AMC de s'adresser à la Conférence des Commissaires sur l'uniformisation de la législation au Canada, qui a elle-même recommandé 18 ans comme âge standard.

## **L'enseignement dentaire**

### **Le FCED dépasse \$100,000 pour la première fois**

Selon Charles E. Peirce, vice-président du Conseil d'administration du Fonds canadien pour l'enseignement dentaire, le Fonds a recueilli \$104,996 en 1971, soit d'une part un nouveau record, et

d'autre part une hausse de 15.4 p.c. par rapport à l'an dernier.

"Les contributions provenant à la fois des dentistes et des maisons de commerce se sont accrues respectivement de 20 et de 28 p.c. Cet apport substantiel est fort encourageant et permettra aux membres du conseil d'administration de promouvoir l'art dentaire d'une façon efficace", de déclarer M. Peirce.

## **L'économie**

### **L'Ontario hausse ses octrois pour les régions défavorisées**

Le Plan de développement des ressources de la santé de l'Ontario offre des octrois pour encourager les dentistes à exercer dans des secteurs de la province qui sont défavorisés au point de vue services dentaires. Les dentistes qui ouvrent leur cabinet dentaire dans l'une de ces régions se verront accorder \$14,000 si le secteur est situé dans le sud de l'Ontario, et \$18,000 s'il est situé dans le nord de la province. Ces octrois sont payables sur une période de quatre ans.

Comme alternative on propose aussi des revenus professionnels annuels garantis nets de \$23,000 pour le sud et de \$26,000 pour le nord de l'Ontario.

Grâce à ce plan, 35 dentistes exercent déjà dans ces régions défavorisées. Douze d'entre eux sont d'origine tchèque et avaient reçu une formation supplémentaire en 1969-70 à l'Université Western Ontario. Treize autres ont été reçus boursiers pendant leur formation universitaire.

Sept dentistes ont établi leur cabinet dans des localités approuvées et trois exercent dans des unités mobiles qui leur permettent d'atteindre les régions éloignées. Le reste exerce dans l'est ou le centre de l'Ontario.

Le gouvernement ontarien offre aussi des bourses de \$3,000 aux étudiants dentistes choisis pendant les deux dernières années de leur cours dans des facultés dentaires canadiennes. Cinquante quatre bourses ont jusqu'ici été accordées à 35 étudiants.

### **Régime d'épargne-retraite de l'ADC**

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 29 février 1972:

*Fonds à revenu fixe* \$12.888;

*Fonds d'actions ordinaires* \$27.588.

L'avoir total (valeur marchande) du régime se montait à \$12,282,734.06.

Au cours du mois précédent, les transactions ont été les suivantes: vente 5,000 actions de Commonwealth Holiday Inns.

Le paragraphe 146(5) de la loi régissant l'impôt sur le revenu autorise des contributions non imposables à un programme de retraite personnelle, représentant jusqu'à 20 p.c. du revenu, avec un maximum de \$4,000.

La Compagnie Trust Royal, qui gère le Régime d'épargne-retraite de l'ADC offre deux sortes de placements distincts: un fonds à revenu fixe et un fonds d'actions ordinaires. Les contributions peuvent être faites entièrement ou en partie au(x) fonds que choisit le contributeur. Il peut faire des transferts entre les fonds sans payer d'amendes.

Le fonds à revenu fixe, qui se compose de bons du trésor, d'obligations, d'actions privilégiées et d'autres sécurités à revenu fixe, offre un très bon revenu avec un risque très faible. Le fonds d'actions ordinaires, qui se compose d'actions ordinaires canadiennes, américaines et étrangères soigneusement choisies, a comme objectif principal l'augmentation du capital.

L'adhésion au programme ou le retrait n'entraîne aucun paiement supplémentaire, ni commission.

Pour de plus amples renseignements, veuillez écrire à: CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto 180, Ont.

## **La fluoration**

### **Selon les pédiatres: aucune alternative à la fluoration**

Selon la Société pédiatrique canadienne il n'existe aucun substitut acceptable à la fluoration dans les régions où l'eau indique un taux très faible en fluorure. "Toutes les réserves municipales d'eau potable devraient donc être traitées pour contenir entre 0.7 et 1.0 ppm de fluorure".

Une déclaration du Comité sur l'alimentation de la SPC recommande aussi l'usage de suppléments de fluorure, allant de pair avec un programme d'éducation, pour tous les enfants de moins de 14 ans là où l'eau potable contient moins de 0.5 ppm de fluorure.

La SPC s'est dressée violemment contre les adversaires de la fluoration qui prétendent qu'en ajoutant du chlore à l'eau, l'homme s'affranchissait d'une menace de la nature tandis qu'en ajoutant du fluorure, il "médicamentait" l'eau. "Cette objection est sans valeur si l'on accepte le fait que le fluorure est un élément essentiel reconnu pour une bonne santé dentaire. Puisque le fluorure est abondant dans certaines eaux et presque inexistant dans d'autres, l'homme peut simplement restituer



les bienfaits de la nature en ajoutant une certaine quantité de fluorure”.

La déclaration insiste aussi sur les aspects économiques de la question en ces termes: “Dans la situation économique difficile que nous traversons en ce moment nous n'avons ni le temps ni l'espace de débattre la question du coût de la fluoruration lorsqu'on sait que ce qu'il en coûte en traitements dentaires aux enfants ayant profité de la fluoruration depuis leur naissance ne représente pas même la moitié de ce qu'il en coûte aux enfants qui en ont été privés”.

### **Programme de fluoruration topique en Californie**

Tout récemment le gouverneur de la Californie, M. Ronald Reagan a signé un document qui permettra à chaque enfant d'âge scolaire de profiter d'applications topiques de fluorure ou d'autres agents anti-carie.

Grâce à cette mesure, tous les élèves des écoles publiques et privées du primaire et du secondaire bénéficieront dès septembre d'une application annuelle au fluorure.

Les dentistes seront chargés de veiller à l'application du programme. L'application de fluorure pourra aussi s'effectuer de façon personnelle.

### **Le parlement suédois annule la loi sur la fluoruration**

La Suède, par une décision récente du parlement, a abrogé une loi datant de 1960 qui donnait aux villes la permission de fluorer leur eau potable. Un vote de 137 à 126 a annulé une recommandation faite par le Comité d'assurance sociale du parlement, recommandation qui demandait le maintien de cette loi.

Les adversaires de la loi avaient émis l'opinion que la fluoruration devenait un remède obligatoire pour la masse, qu'il y avait maintenant une quantité de points de vues divergents sur les effets dangereux possibles de la fluoruration et qu'il existait d'autres méthodes pour combattre la maladie dentaire, tout aussi efficaces que la fluoruration.

Les arguments utilisés pour l'abrogation furent que la loi de 1962 avait été passée d'abord et avant tout pour permettre à la ville de Norrköping de poursuivre ses expériences sur la fluoruration, expériences qui avaient été interrompues en 1961 par une décision de la Cour administrative suprême. Ces expériences ne furent cependant jamais terminées.

Les adversaires de cette loi ont aussi déclaré que, bien que l'Organisation mondiale de la santé prône la fluoruration, cet organisme avait dans le passé

préconisé l'usage du DDT. Ils ont aussi prétendu (mais ceci est incorrect) que la mortalité infantile aux E.U. s'est accrue après l'introduction de la fluoruration.

Le Comité d'assurance sociale a rétorqué qu'il n'y avait aucune preuve permettant d'avancer que la fluoruration pouvait avoir des effets secondaires dangereux. De plus le comité a fait remarquer que le fluorure, en tant qu'élément naturel, ne devrait pas être classé dans la catégorie du DDT, de la thalidomide ou d'autres médicaments artificiels qui se sont révélés dangereux à l'usage.

L'abrogation signifie que seule la fluoruration de l'eau potable est illégale. Par contre les cliniques, les écoles et les centres médicaux pour enfants pourront toujours dispenser à ceux qui le désirent des comprimés ainsi que des traitements à base de fluorure.

## **La recherche**

### **Ordinateur et pratique dentaire**

Des scientifiques de l'Université de la Floride utiliseront un ordinateur pour étudier les effets des divers aspects de la pratique dentaire qui influencent le coût et l'efficacité des soins donnés. Un jour on utilisera ces résultats pour répondre aux nombreuses questions que pose la pratique dentaire.

Des enregistrements magnétoscopiques effectués dans plusieurs cabinets dentaires et dans des cliniques, ainsi que des données provenant d'autres sources aideront les chercheurs à déterminer par exemple le temps requis par le dentiste et ses auxiliaires à exécuter une tâche donnée, la durée de l'attente du patient et la période de temps pendant laquelle chaque membre de l'équipe dentaire reste inoccupé. De plus on colligera les faits relatifs aux différents types de personnel utilisés, les aptitudes de chacun, les tâches confiées à chaque employé ainsi que le coût approximatif par traitement.

Toutes ces données seront ensuite confiées à un ordinateur qui pourra faire varier des facteurs tels que type de personnel, tâches assignées et organisation du travail. On évaluera de la sorte les effets de ces diverses combinaisons sur le coût et l'efficacité du traitement.

Les résultats de cette recherche pourront à l'avenir être utilisés dans la planification de programmes de santé dentaire ainsi que dans l'enseignement et la formation d'un personnel affecté à la santé dentaire. A titre d'exemple, avant de mettre sur pied son cabinet dentaire, un dentiste moyennant quelques dollars (ce que coûterait l'utilisation de l'ordinateur) pourrait savoir comment son revenu net serait affecté

par certains barèmes d'honoraires, par certains types de personnel ou par le genre de services offerts.

### **Une nouvelle résine scelle le fluorure dans les dents**

Des scientifiques du Centre dentaire Forsyth à Boston ont mis au point une nouvelle substance à scellement qui prolonge la concentration de fluorure et décourage apparemment la carie.

On prépara les dents de 50 patients âgés de 11 à 18 ans à l'aide d'une solution acidulée de fluorure de phosphate appliquée avec un porte-empreinte, chacune des arcades étant traitée séparément.

La substance à scellement fut appliquée à l'aide d'un petit pinceau sur toutes les surfaces des couronnes cliniques d'un côté de la bouche. De l'autre côté, les dents furent laissées telles quelles. Selon les chercheurs le pré-traitement et le traitement prirent en tout 30 minutes.

On effectua des biopsies sur les dents traitées au fluorure et sur celles qui ne l'étaient pas à un, six, neuf et 12 mois pour comparer les taux de fluorure.

Les dents traitées indiquèrent une concentration plus élevée de fluorure. L'examen effectué au bout de six mois ne révéla que trois nouvelles caries sur les dents traitées en comparaison de 15 sur la partie de la bouche qui n'avait pas été traitée. Un total de 264 molaires et prémolaires furent examinées dans chaque groupe.

### **L'amidon et les caries**

On a longtemps considéré le saccharose comme l'un des principaux agents favorisant la carie dentaire, mais l'amidon pourrait bien partager cette triste réputation.

Deux scientifiques dentaires de l'Université de l'Oregon déclarent que le *Neisseria*, second organisme buccal en importance, se développe à merveille sur l'amidon, mais se passe de sucre.

Le *Neisseria* seul ne provoque pas la carie dentaire, mais il produit et dégage l'amylopectine, une molécule à longue chaîne répétée ou polymère, différente du dextran collant et des polymères de levan que les streptocoques qui forment des plaques développent à partir du saccharose.

Si le dextran aide les bactéries à s'attacher en plaques aux dents, l'amylopectine peut servir comme autre source alimentaire à ces bactéries qui se développent et se transforment en acides qui attaquent l'émail. Ces chercheurs déclarent que l'un de ces streptocoques se développe 50 fois plus vite sur l'amylopectine du *Neisseria* que sur le sucre.



### Initial dental care time, cost and treatment requirements under changing exposure to fluoride during tooth development

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*This article shows how dental treatment requirements varied in 1,741 five year old children, depending on their age at the start of water fluoridation in Metropolitan Toronto. The children received initial dental care as participants in the North York time-cost study. Savings of over 50 per cent in amalgam restorations, cost and chair time were realized by high fluoride compared with low fluoride exposure groups. The findings suggest that the critical time for exposure to fluoride is during the postnatal, pre-eruptive phase of tooth development. The earlier the exposure in this period, the more complete the protection.*

*Cet article indique jusqu'à quel point les besoins de soins dentaires varient chez 1,741 enfants de cinq ans, tout dépendant de leur âge lors des débuts de la fluoruration de l'eau dans Toronto métropolitain. Ces enfants reçurent, au début, des soins dentaires en tant que participants de l'étude "temps-coût" menée à North York. On remarqua que l'on sauvait plus de 50 p.c. en restaurations à l'amalgame, en coûts et en temps passé dans le cabinet dentaire avec les enfants qui avaient profité de la fluoruration plus longtemps que les autres. Ces résultats tendent à démontrer que la période critique d'exposition au fluorure se situe juste après la naissance, pendant la phase pré-éruptive du développement des dents. Plus ils sont exposés jeunes au fluorure, plus complète semble la protection.*

The cariostatic effect of communal water fluoridation is very well documented. However, the literature contains few objective, controlled studies demonstrating fluoride benefits on savings in treatment needs and costs. A recent review by Small<sup>1</sup> confirms this. Also, opinions vary on the actual time at which fluoride should be incorporated into teeth to give satisfactory dental caries protection. Some feel that exposure to fluoride early in tooth calcification is essential; others suggest that satisfactory protection is given if fluoride is made available at the pre-eruptive maturation phase of tooth development.<sup>2</sup> Backer Dirks<sup>3</sup> supports both views by claiming that maximum pit and fissure caries prevention requires exposure to systemic fluoride early in calcification but that for some smooth surfaces pre-eruptive and even posteruptive maturation exposure gives protection.

Evidence on the effect of prenatal exposure to fluorides on deciduous caries is conflicting. Data gathered in Oregon<sup>4</sup> and from the Evanston<sup>5</sup> and Grand Rapids<sup>6</sup> studies indicate that greater protection is afforded primary teeth given prenatal plus postnatal exposure to fluoride than postnatal exposure alone. However, Carlos et al<sup>7</sup> and Horowitz and Heifetz<sup>2</sup> found that prenatal exposure gave no additional protection to primary teeth. Katz and Muhler,<sup>8</sup> using def data of children whose mothers moved into a fluoride city at various times before and after their children were born, ascribe more significance to the postnatal and the possible topical posteruptive effect of water-borne fluorides than to the prenatal effect. More recent survey data gathered just prior to, four years after, and six and a half years after cessation of a community's water fluoridation suggest that prenatal fluoride alone or combined with postnatal fluoride up to



**Study group ages  
(North York incremental time-cost study)**

**Table 1**

| Group | No    | Mean age in years (S.D.) |                          |
|-------|-------|--------------------------|--------------------------|
|       |       | At first visit           | At start of fluoridation |
| A     | 249   | 5.61 (.24)               | -1.23 (.20)*             |
| B     | 115   | 5.39 (.29)               | -0.74 (.12)*             |
| C     | 284   | 5.66 (.22)               | -0.23 (.13)*             |
| D     | 378   | 5.50 (.27)               | 0.36 (.24)               |
| E     | 304   | 5.35 (.24)               | 1.02 (.15)               |
| F     | 411   | 5.51 (.29)               | 1.87 (.27)               |
| Total | 1,741 |                          |                          |

\* Negative means born before the start of fluoridation

the time of eruption has very little caries-reducing effect on primary teeth of kindergarten children.<sup>9</sup>

Because of their varying ages at the start of water fluoridation, participants in the North York, Ontario, incremental time-cost study provide some useful comparative data on how fluoride affects the initial dental care treatment requirements of five year olds. The findings also serve to indicate the optimal time for pre-eruptive exposure of primary molars to systemic fluoride.

## Method

The data were derived from the North York study<sup>10</sup> which tests the effectiveness of school clinic incremental dental care, starting with five year old children. The study is in its fifth year and the initial and maintenance care requirements will be reported elsewhere.

This investigation involved 1,741 kindergarten children with known birthdates and within the age range of  $5.5 \pm 0.6$  years who received complete dental treatment in the first four initial care years of the study. The children came from 20 randomly selected schools and have resided since birth in Metropolitan Toronto. Participation was voluntary and ranged from a low of 53 per cent in one school to a high of 88 per cent in another, with a mean of 68 per cent.

The 1,741 children were divided into six groups according to the exact decimal years<sup>11</sup> between their births and September 4, 1963 — the start of fluoridation in Metropolitan Toronto (Table 1). Group A children were born over 11 months prior to the start of fluoridation; group B children in the period from just over six to 11 months before fluoridation; and group C children from six months before to the day fluoridation started. Group D children were born the day after fluoridation started to nine months later and group E from just over nine to nearly 16 months after fluoridation began. Finally, group F children were born from 16 to 28 months after fluoridation. Each group, from A to F, was increasingly exposed to fluoride during primary tooth development and maturation.

All groups except one contained at least 249 children and were nearly equal in sex distribution. Although the mean group age at the first clinic visit was close to the expected 5.5 years, the computer analysis program was revised to standardize the requirements for all children to 5.5 years. The unstandardized treatment requirements which were also run differed very little from the standardized ones reported here.

From the analysis of total services rendered in North York and the time and cost factors involved, the following categories were selected for presentation: mean number of amalgam restorations, mean chair time and cost per child. These three variables were related to pre-eruptive and posteruptive exposure to fluoride.

## Results

Amalgam restorations, cost and chair time requirements to complete dental care for the six study groups are analysed in Table 2 and illustrated in Figures 1, 2 and 3. Because of the close correlation between these three variables the pattern of decreasing needs and cost from one group to the next is similar; that is, an initial steady decline up to just before the start of water fluoridation followed by a levelling off with only a very slight decline thereafter.

For the amalgam restoration requirements the change with time is clearly due to decreased needs

**Mean restorative, time and cost requirements per child  
(North York incremental time cost-study)**

**Table 2**

| Group | No. of amalgam restorations |           |                  | \$ cost*   |                |            |                      |
|-------|-----------------------------|-----------|------------------|------------|----------------|------------|----------------------|
|       |                             |           |                  | Unit fees  |                | Hourly fee | Chair time (minutes) |
|       | Total                       | 1 surface | Compound surface | Total care | Operative care |            |                      |
| A     | 3.47                        | 0.73      | 2.73             | 63.18      | 46.18          | 39.54      | 91.3                 |
| B     | 2.62                        | 0.71      | 1.89             | 50.77      | 33.37          | 29.46      | 68.0                 |
| C     | 1.80                        | 0.72      | 1.06             | 39.47      | 22.47          | 23.09      | 53.3                 |
| D     | 1.75                        | 0.72      | 1.03             | 38.22      | 21.22          | 21.58      | 49.8                 |
| E     | 1.50                        | 0.75      | 0.73             | 34.11      | 17.11          | 19.58      | 45.8                 |
| F     | 1.20                        | 0.59      | 0.60             | 30.85      | 13.85          | 18.27      | 42.2                 |

\* 1967 Ontario Dental Association fee schedule



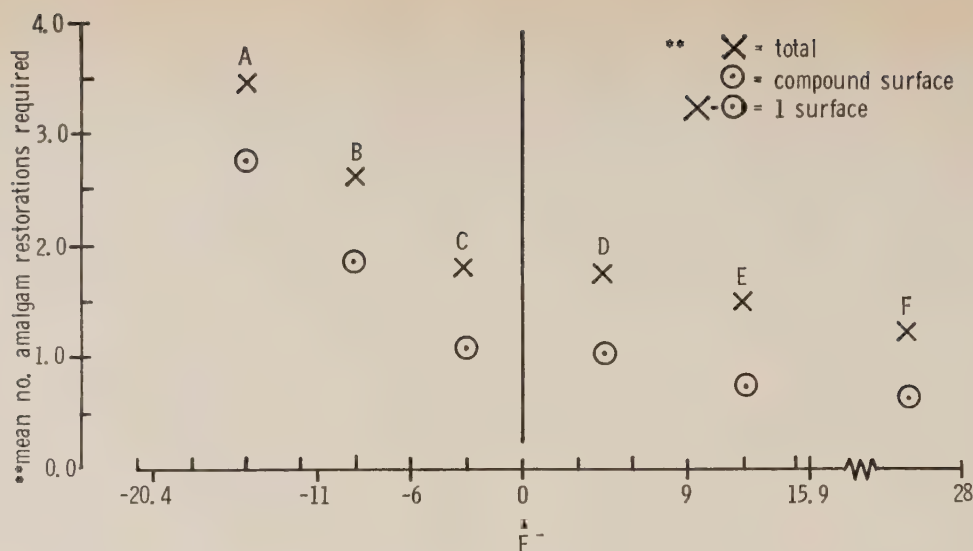


Fig 1 Restoration needs versus fluoride exposure.

for compound restorations, since the mean for one-surface requirements of the groups A to F remained constant at about 0.7. For example, the percentage reduction in total amalgam fillings needed between groups A to F is about 65 per cent but when compound restorations for these same two groups are considered, the reduction is 78 per cent.

Costs were tabulated using the 1967 Ontario Dental Association fee schedule of unit fees and hourly rates. Though parts of the schedule have changed over the past few years the 1967 schedule in effect at the start of this study has been maintained to permit standardized comparisons among the groups. Mean cost for total care using the unit fee schedule dropped about 51 per cent from a high of \$63 in group A to a low of \$31 in group F. The percentage reduction is of course greater (70 per cent) when the cost for operative care alone for these same two groups is considered because in spite of fluoridation, the cost of basic care

(examination, bitewing radiographs, prophylaxis and topical fluoride application) received by every child is constant.

Mean chair time per child between the first and last groups decreased some 54 per cent from about 91 to 42 minutes. The approximate average time required to provide the basic care outlined above is indicated in Figure 3 as a reminder that a fixed amount of time must be given to each child regardless of his treatment needs.

## Discussion

At the outset, two considerations are essential to the proper interpretation of these treatment records. First, since one dentist provided care during the first study year while two others participated in each of

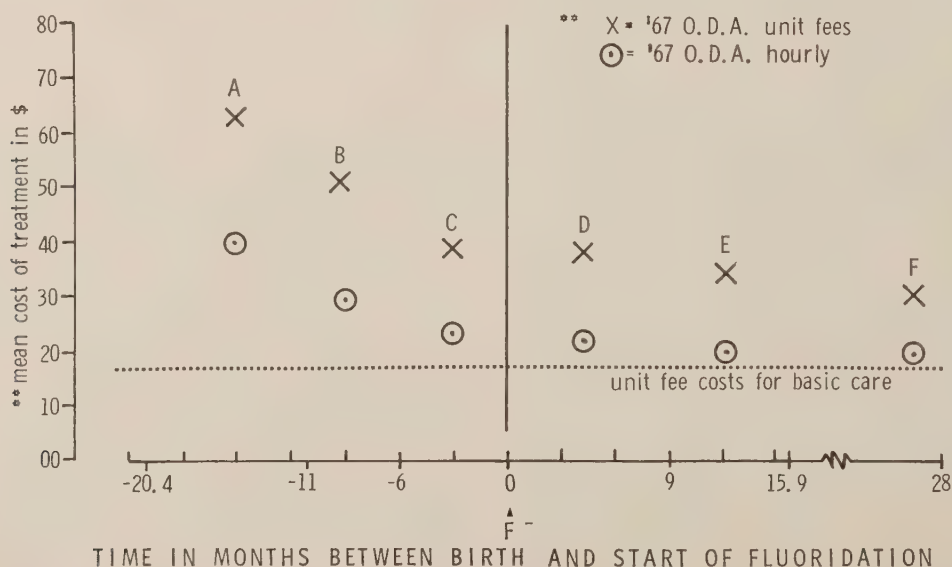


Fig 2 Treatment costs versus fluoride exposure.



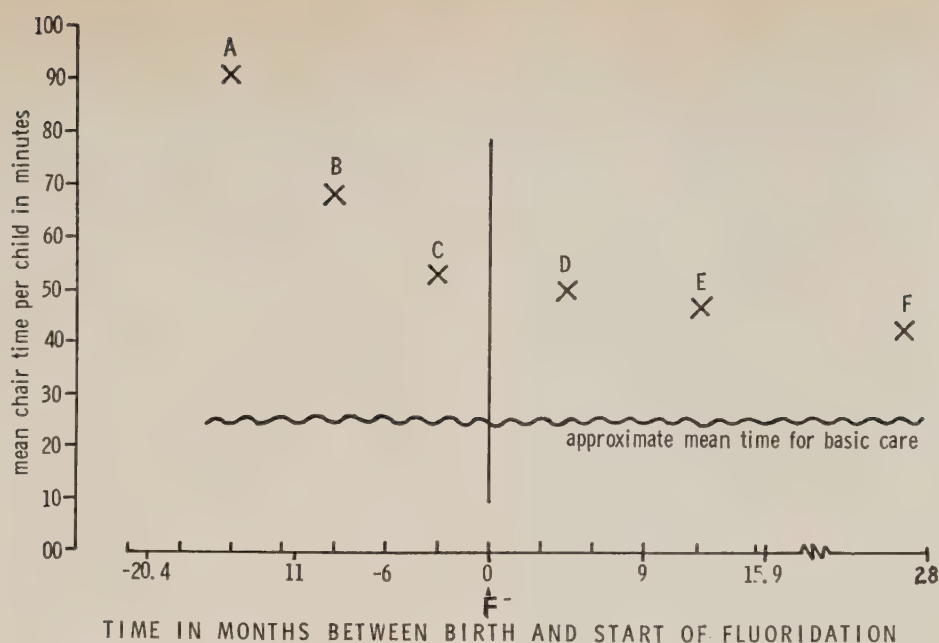


Fig 3 Treatment time versus fluoride exposure.

the next three years, concern over possible different treatment levels among the dentists had to be resolved. On the basis of the complete care rendered each child, his second year maintenance requirements and internal analysis of the specific treatment provided by two dentists, it is reasonably certain that dentist treatment level differences were negligible for the first five study groups; however, with the sixth study group (F) we discovered a tendency for one dentist who was leaving the program at the end of that year to do slightly less average treatment per child. Whether this finding represents a real difference between treatment levels of the two dentists or treatment needs of the children will be obvious when first year maintenance care is completed for this age group. A second consideration is whether participants in each study year have similar care levels at kindergarten entrance. Checking def components for some children and initial radiographs of others revealed that prior care levels of all groups were low and similar.

The decreasing treatment needs described here are clearly due to increasing pre-eruptive fluoride exposure of primary molar teeth. Since all children, including the oldest child who was born 20.4 months before the start of fluoridation, had virtually equal posteruptive molar tooth exposure to any topical effect that water-borne fluorides might have, no comparisons on this factor alone were possible.

Figure 4 indicates in a schematic way the relationship between the first water-borne fluoride exposure of each of the six study groups and the approximate stage of that group's primary molar tooth development. Group A's molars were in the latter maturation and eruption phases when fluoridation started. Group B's teeth were first exposed at the latter part, and in some cases at the end, of crown calcification but most received fairly complete maturation exposure. Group C's teeth were first exposed during much of the last part of the calcification phase and completely throughout maturation. None of A, B or C children received any prenatal exposure. Group D's primary molars were

exposed prenatally in part, and throughout postnatal calcification and maturation. Finally, teeth in groups E and F received complete prenatal, calcification and maturation exposure. Therefore, from group A to E and F there is an increasing hierarchy of pre-eruptive exposure at the maturation, crown calcification and prenatal phases of tooth development. Group A primary molars are, in terms of tooth developmental exposure, essentially fluoride-free while group E and F molars are totally exposed.

Interestingly, the initial care restorative requirements of five year olds given by Ast et al<sup>12</sup> in a fluoridated and a non-fluoridated New York community are very similar to North York's E-F and A groups respectively. Also, the pronounced tendency for a reduction in compound restorations with increased fluoride exposure is consistent with the idea that smooth proximal surfaces achieve relatively high protection from fluoridation.<sup>3,13</sup>

## Conclusions

1. When contrasted to the needs of five year olds with relatively little pre-eruptive primary molar exposure to fluorides (group A), those with full exposure to systemic fluorides (groups E and F) had a 60 to 65 per cent reduction in need for amalgam restorations and even higher reductions if need for more time-consuming compound surface restorations is considered. Savings of just over 50 per cent were registered in the cost and chair time required to provide complete dental care for the high fluoride exposure group. These findings parallel those reported by Ast et al<sup>12</sup> and Denby and Hollis.<sup>14</sup>

2. The slight reductions in amalgam restoration requirements from group C to D to E (that is, no, partial and full prenatal exposure, respectively) suggest only negligible prenatal benefits from systemic fluorides.



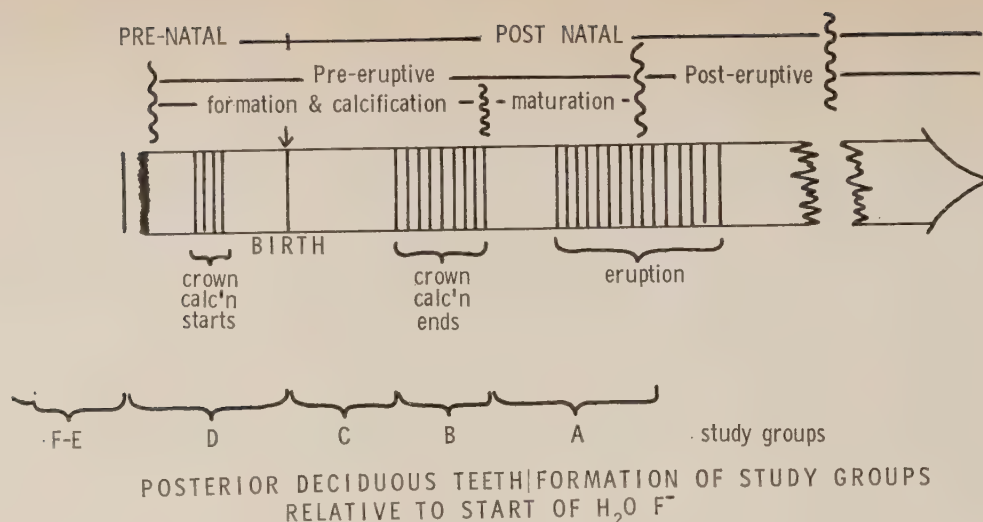


Fig 4 Schematic representation of the formation of posterior primary teeth in study group subjects relative to the start of water fluoridation.

3. The critical time for protection as measured by need for restorations seemed to be fluoride exposure during postnatal pre-eruptive tooth development. And, in this period, the earlier the exposure, the more complete was the protection.

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*By means of two case reports the authors illustrate the clinical and microscopic features of odontogenic keratocysts. These lesions tend to occur in the same areas as ameloblastoma from which they are often visually and radiographically indistinguishable. Unlike other odontogenic cysts, these potentially destructive lesions are very apt to recur. Treatment consists of total extirpation and careful follow-up over several years.*

*A l'aide de deux cas, les auteurs illustrent les caractéristiques cliniques et microscopiques des kératokystes d'origine dentaire. Ces lésions ont tendance à se développer aux mêmes endroits que les améloblastomes que l'on a d'ailleurs beaucoup de difficulté à différencier, soit à l'oeil, soit au microscope. Au contraire des autres kystes d'origine dentaire, ces lésions malignes se reforment souvent. Le traitement consiste en une extirpation totale; de plus il faut suivre le patient attentivement pendant plusieurs années.*

## **Odontogenic keratocyst: A clinical and histologic appraisal**

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The potentially destructive nature of several cystic lesions of the jaw means that the dentist must recognize them early and ensure appropriate treatment. The odontogenic keratocyst has a bone destroying potential similar to ameloblastoma. The purpose of this article is to review the salient clinical and histopathologic features of this lesion, illustrate its variability with two case reports and comment on the clinical significance of these observations.

### **Review of the literature**

Although the clinical and radiographic characteristics of keratocysts are not diagnostic, the literature reports many histologic features which appear to be relatively typical of this type of cyst. The following manifestations are commonly reported: a uniformly thin stratified squamous epithelium without rete ridges, cuboidal or columnar basal cells with variable numbers of pyknotic or vesicular nuclei, a corrugated keratinized or parakeratinized epithelial surface, slight inflammation and cholesterol deposits in the cyst



Fig 1 Radiograph of case 1 showing a radiolucent lesion which appears to be divided into three compartments. When entered surgically the site was occupied by a single cyst filled with cheesy material.

wall, and white or yellowish-white cheese-like cyst contents.<sup>1-7</sup> In addition, authors have reported that the epithelial lining is almost invariably complete, the cells of the stratum spinosum frequently show vacuolation and the basal cell nuclei polarize away from the basement membrane.<sup>3, 8</sup>

The naming of these cysts is controversial. Some writers object to the term "primordial" cyst as this limits its origin to the tooth primordium.<sup>1</sup> The keratin or parakeratin production which characterizes these cysts has engendered wide acceptance of the term "odontogenic keratocyst."<sup>1, 3, 7</sup> The term "solitary keratocyst" was proposed by Panders and Hadders<sup>5</sup> to distinguish these cysts from the keratocysts which form part of the multiple naevoid basal cell carcinoma syndrome. It must be recognized that keratin production occasionally occurs in a variety of odontogenic cysts.<sup>1, 7</sup>

Primordial cyst development probably results from degeneration and liquefaction of the stellate reticulum at the bell stage of enamel organ development.<sup>2, 9</sup> Researchers disagree as to whether similar cysts can arise from offshoots or remnants of the dental lamina.<sup>3, 6</sup> In an attempt to reconcile the keratin forming activity of keratocysts with their tissue origin, Panders and Hadders suggest that these cysts may arise from epithelial cells which split off from the primitive oral ectoderm during the development of the dental lamina. However, Hjorting-Hansen et al<sup>7</sup>



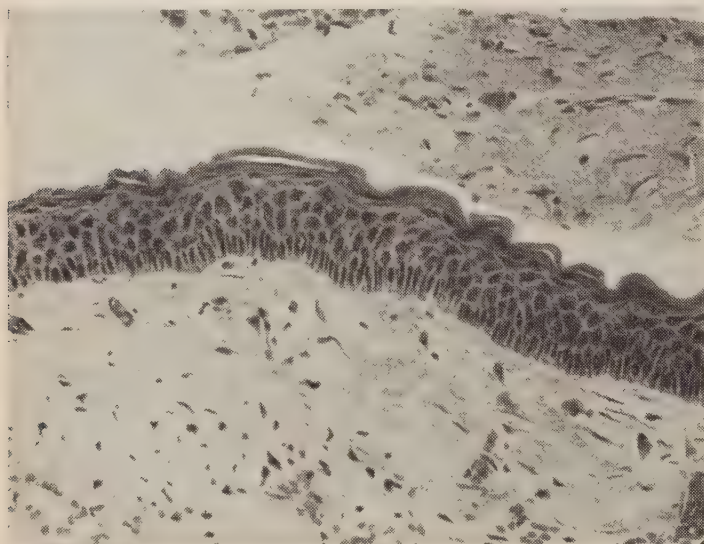
believe that the dental lamina could form keratinized epithelium and further suggest that only dental lamina residues or proliferations have the potential to form cysts with keratinized epithelium.

The reported incidence of odontogenic keratocysts varies from approximately 3 to 11 per cent of all jaw cysts.<sup>2, 4, 5, 10</sup> Peak incidence is in the second and third decades, with the most common site of occurrence in the mandibular third molar and ramus region.<sup>1, 3</sup> While epithelial proliferation in cyst development is usually initiated by an inflammatory stimulus, such a stimulus is apparently not necessary for primordial cyst development.<sup>10, 11</sup> Although central degeneration of the epithelial cell mass and consequent osmotic imbalance probably have a significant influence on the expansion of the primordial cyst, Toller<sup>12, 13</sup> takes the view that "frank epithelial activity plays a very important part in the growth of these keratinizing cysts." Ten Cate<sup>14</sup> has shown that keratin formation is an anabolic function of epithelial cells rather than representative of degenerative change. The results of Main's<sup>15</sup> work, supporting Toller's view, demonstrate that the mitotic activity in primordial cyst lining is much greater than in all other odontogenic cyst types and compares to that of ameloblastoma and dental lamina.

Perhaps related to this is the well-known tendency for primordial cysts to recur. A number of studies have established a recurrence rate of approximately 60 per cent in contrast to a very low recurrence rate in all other odontogenic cysts.<sup>1, 3, 10</sup> Oehlers<sup>16</sup> has shown that most periodontal cysts resorb, or at least stop growth, when the inflammatory stimulus is removed.

Ameloblastomas and carcinomas may occasionally arise in follicular and dentigerous cyst walls.<sup>17-20</sup> A review of reported cases indicates that these changes are considerably more common in keratocysts than in other odontogenic cyst types.<sup>3, 20-23</sup> Such activity in keratocysts lends credence to Toller's suggestion that these cysts are perhaps related closer to the category of true benign epithelial tumours whose lesion development depends on epithelial growth.<sup>3</sup>

Fig 2 Tissue section from the cyst lining (case 1) showing histologic features characteristic of odontogenic keratocyst. Prominent features are surface keratinization, columnar type basal cells and absence of inflammatory cell infiltration. H.E. Original magnification x400.



**Case 1**—A white male, aged 41 years, developed a painless swelling on the buccal aspect of the left mandible. Radiographs showed three apparently separate radiolucent lesions extending from the second bicuspid posteriorly to include a large portion of the ramus (Fig 1).

Surgery revealed a single intrabony space occupied by a cystic lesion with "cheesy" content. The thin lining was dissected from a smooth bony crypt and histologically examined. Prepared tissue sections showed microscopic features characteristic of an odontogenic keratocyst (Fig 2).

A follow-up examination eight months later indicated healing was progressing favourably.

**Case 2**—A white male, 49 years old, presented with pain and swelling in the angle of the right mandible. Drainage from a retromolar site gave rise to a foul taste. The symptoms had been present for one week. The patient had a history of rheumatic fever, stomach ulcer and osteomyelitis of the right tibia, but at the time of examination he appeared to be in good general health.

Radiographs showed a multilocular radiolucent lesion involving a major portion of the angle and ramus of the mandible (Fig 3). An incisional biopsy obtained from the retromolar area revealed a large cystic cavity. The tissue was submitted for histologic examination with a clinical diagnosis of cystic ameloblastoma or residual dentigerous cyst.

Microscopic examination of prepared biopsy tissue sections showed masses of loose fibrous tissue densely infiltrated with chronic inflammatory cells. The luminal cyst surface was lined with epithelium typical of odontogenic keratocyst. Some areas had undergone metaplasia to a stratified squamous-type epithelium. In one area the junction between epithelium and connective tissue became indistinct, with apparent invasion of the epithelium into the underlying connective tissue. Most of the clumps of invading cells showed prickle cell morphology with frequent keratin pearl formations. Other clumps of cells showed odontogenic cell morphology (Fig 4). A provisional diagnosis of acanthomatous ameloblastoma was made.

Under general anaesthesia the affected ramus was bared. Multiple perforations of the medial and lateral cortex were noted. The entire coronoid process and the superior bony margin of the sigmoid notch had to be removed to excise the lesion within the bone. A yellowish, solid-tissue mass was removed from the posterior loculation noted on the radiograph (Fig 3). Because of the apparent aggressive quality of the lesion the second molar was removed to ensure proper access for curettage.

After excising the pathologic tissue the bone cavity was packed with gauze soaked in Carnoy's solution. The patient experienced a normal post-operative course with right mental paraesthesia resulting from surgical manipulation of the neurovascular bundle and the toxic effect of the sclerosing solution. The pack was removed in one week and the defect left to heal by secondary intention. Surgically removed material was examined microscopically as three separate specimens.





Fig 3 The lesion described in case 2 involved most of the ramus and the coronoid process. The original radiograph showed a faint multilocularity. Surgery revealed multiple perforations of the medial and lateral cortical plates.

Tissue sections representing all parts of the lesion were examined. The yellow, solid-tissue mass showed the presence of young spicules of bone, loose fibrous tissue, and granulation-type tissue with foci of multinucleate giant-cells similar to those described by Boss.<sup>24</sup> Another isolated area showed loose oedematous fibrous tissue with diffuse dystrophic calcification. All other areas showed typical odontogenic keratocyst-type tissue with areas of squamous metaplasia and varying degrees of chronic inflammatory cell infiltration. None of the tissue sections prepared from the submitted biopsy material supported the provisional diagnosis of acanthomatous ameloblastoma.

A recall examination after six months revealed good clinical healing with normal mandibular function and minimal mental paraesthesia. Radiographic examination one year postoperatively demonstrated slight osseous regeneration and no evidence of recurrence.

## Discussion

Case 1 can be considered a classical solitary keratocyst, both clinically and histologically, and presented no diagnostic problem. The final diagnosis in case 2 is also keratocyst but there is some evidence that ameloblastoma may be developing, particularly when compared to the cases reported by Boss<sup>24</sup> and by Fleming et al.<sup>25</sup> It will be interesting to follow and compare the healing patterns of the two lesions over a period of years.

Whether or not one considers the keratocyst simply as an odontogenic cyst, showing unique behavioural and histologic features, or as an odontogenic tumour is probably unimportant. The aggressive quality of the lesion is well recognized. Early diagnosis and proper treatment are necessary to prevent extensive destruction of the bone and possible adjacent soft-tissue involvement.

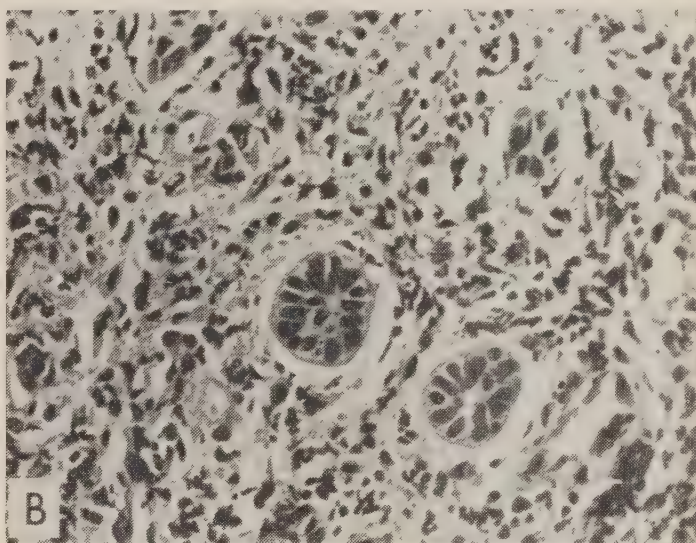
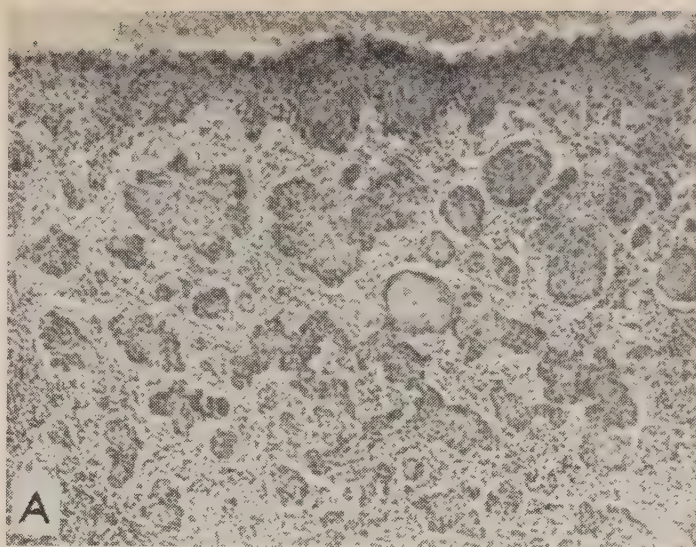


Fig 4 Incisional biopsy from case 2 showed areas in which epithelial invasion was apparent. A, keratin pearl formations and basal cell carcinoma-like epithelial clumps can be seen. H.E. x100. B, epithelial cell clusters showing odontogenic cell morphology. H.E. x400. C, several isolated epithelial cell clusters deeper in the connective tissue show histologic features suggestive of ameloblastoma. H.E. x400.



An odontogenic keratocyst may originate from the developing enamel organ, the dental lamina, or from remnants of the latter. Consequently, the initial lesion is so positioned in the jaw that routine diagnostic radiographs of the molar area should, in most cases, indicate its presence. Dentists may have paid too little attention to good routine radiographic coverage of the molar-retromolar areas. An appreciation of the potentially destructive nature of several lesions which originate in this area should encourage the dentist to obtain and examine carefully radiographs of the posterior mandible in all age groups.

Clinically, the primordial cyst may be indistinguishable from ameloblastoma. Both occur generally in the same areas, tend to appear loculated on radiographs and do not cause symptoms until the lesion is extensive.<sup>1</sup> Toller<sup>3</sup> states that the loculi of a large keratocyst or dentigerous cyst are much larger than the bubble-like loculi associated with ameloblastoma or giant-cell lesions. The keratocyst can often be differentiated from a dentigerous cyst and ameloblastoma by punch biopsy and aspiration of cyst contents. Keratocyst contents are typically thick, cheesy, milk-white and often mistaken for pus but sometimes comprise a thin straw coloured fluid.<sup>3</sup> Results of electrophoretic studies of cyst contents are probably more reliable in differentiating between cyst types.<sup>1, 3, 26, 27</sup>

Odontogenic cysts may regress spontaneously, and recur rarely, even if the epithelial lining is not totally removed.<sup>16</sup> However, the incidence of recurrence in odontogenic keratocysts is remarkably high. This may be attributable to the inherent proliferative and infiltrative ability of dental lamina tissue.<sup>12, 28</sup> The fact that keratocysts have been successfully treated by marsupialization indicates that other environmental factors, such as osmotic pressure, also play determining roles.<sup>7</sup> Recurrence may be related to microcyst remnants developing into clinical recurrent lesions following surgical removal.<sup>3</sup> The acanthomatous ameloblastoma-like area in case 2 may represent early microcyst formations in the wall of the main cyst. Such areas, if left in the tissues, may very well give rise to a recurrent lesion. Therefore, from the treatment point of view, the odontogenic keratocyst should be treated as a benign neoplasm. One should attempt early recognition with proper presurgical diagnosis, total removal and careful follow-up. Toller<sup>3</sup> recommends a recall examination, including radiographs, at the end of the first, third and seventh years following initial treatment. Browne<sup>1</sup> suggests that recurrence is most likely during the first five postoperative years and recommends annual radiological examinations during this period.

The two cases described underline the importance of diagnosis of radiolucent lesions of the jaws on the basis of careful clinical and microscopic studies. A radical approach to the treatment of ameloblastoma may be justified, whereas odontogenic keratocysts can be successfully treated by more conservative procedures.

## Summary

The odontogenic keratocyst may show clinical and radiographic features similar to ameloblastoma. Al-

though it is a benign lesion, it has potential to destroy bone extensively. For this reason early recognition, correct diagnosis and appropriate treatment are essential. The high incidence of recurrence demands careful follow-up.

The two case reports of an odontogenic keratocyst illustrate some common and unusual characteristics of this lesion.

Mr. Tovell, a third year dental student, prepared this article while holding a Medical Research Council summer studentship under Doctor Dick. Doctor Dick is associate professor of oral pathology and Doctor Mickleborough is a lecturer in oral surgery at the Faculty of Dentistry, University of Alberta, Edmonton.

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## Training auxiliary personnel for paedodontic practice in 1980

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*Demand for dental care is increasing more quickly than the number of new dentists entering the profession. Doctor Pulver suggests that the traditional form of paedodontic practice may have to change radically over the next few years to accommodate this rapidly growing demand. The author points out many ways in which auxiliary personnel can learn to perform additional duties in order to increase the level and quality of treatment provided.*

*La demande pour les soins dentaires s'accroît beaucoup plus rapidement que le nombre de nouveaux dentistes qui entrent dans la profession. Le Dr Pulver suggère un changement radical dans la pratique pédiodontique traditionnelle, qui pourra ainsi accommoder cette demande sans cesse grandissante au cours des prochaines années. L'auteur insiste sur un certain nombre de cas où le personnel auxiliaire peut apprendre à exécuter certaines tâches supplémentaires, ce qui accroîtrait le niveau et la qualité du traitement rendu.*

This paper discusses the traditional role of the general practitioner and the specialist in dentistry and whether or not the style of dental practice is likely to change to suit future demands. It is possible that the paedodontist may become more of a clinical supervisor, diagnostician and administrator. Some of the tasks he now performs which are more or less routine technical

skills may be given to auxiliary personnel to perform. If dentistry can accept these facts, then the whole concept of dental practice will change. Of course, there will still be an impressive range of complex problems, clinical and psychological, for which the specialist will be needed because of his superior professional education, clinical training and experience.

The discrepancy between the need for dental services and the current demand underscores the necessity for effective utilization of auxiliaries. The role of the dental auxiliary varies in the provinces of Canada and in the various states of the USA. Some areas still do not permit the use of dental hygienists. Others already allow dental assistants to perform expanded duties. In many areas the female hygienist has been an integral part of the dental team for many years.

How shall we cope with the future demand for services? We must train auxiliary personnel to perform expanded functions. There are several alternatives as to the type of personnel. A dental therapist has been suggested by some. The role of the existing dental hygienist could be expanded or, where there are no hygienists, the duties of the dental assistant could be expanded. It is essential to increase the functions of the auxiliary to meet the particular needs of each province or state. Demands for dental services differ in large urban areas and in rural communities so that appropriate facilities should be provided to cater specifically for every situation. How will we, the dental profession, tackle these problems? How will we train the proper type of auxiliary and how will she function in the paedodontic practice of 1980?

### Training programs

Training programs for auxiliary personnel with expanded functions are numerous. New Zealand<sup>1</sup> introduced the School Dental Service plan in 1920 to provide free dental services for all children below the age of 16 by "dental nurses." The training program was two years in duration and they were trained to perform duties which included examination, diagnosis, treatment planning, prophylaxis, application of topical fluorides, local infiltration anaesthesia, preparation of cavities, placing of simple restorations, extracting



primary and permanent teeth under local anaesthesia and dental health education.

In Great Britain<sup>1</sup> a program was initiated in 1960 to train high school graduates as dental auxiliaries to place simple restorations, extract primary teeth and give prophylaxis under supervision by a dental officer.

Baird, Purdy and Protheroe<sup>2</sup> in 1963 reported about the expanded utilization of dental hygienists in the Canadian Army. These hygienists (called clinical technicians) with a minimum of three and a half years of experience were given a 16 week course and were then called therapists. The experimental team consisted of a dental officer, a dental therapist, a chair-side assistant, a roving and a clerical assistant. After completion of the study, conducted solely among adults, the experimental team had a 99.1 per cent greater productivity than that of a conventional dental officer-assistant team.

Hammons and Jamison<sup>3,4</sup> at the University of Alabama evaluated the quality of treatment performed by auxiliaries with expanded functions, and that of randomly selected, advanced dental students. Seven carefully selected high school graduates were trained in a two year program to apply rubber dam, adapt matrices and insert and finish amalgam, silicate and temporary restorations. The proportion of clinical procedures judged to be excellent was consistently higher for the trained auxiliary than for the dental students.

Lotzkar, Johnson and Thompson<sup>5,6</sup> of the United States Public Health Service last year reported on an experimental program with expanded functions for dental assistants at the Dental Manpower Development Centre in Louisville, Kentucky. Their research extended over five and a half years. The training program is described in great detail in the January 1971 issue of the *Journal of the American Dental Association*. A basis of proficiency was established by assessing the performance of dentists working in a conventional manner. Dental assistants were given one year of additional training. The results showed that the trained assistants could perform procedures which accounted for two-fifths of the dentist's chairside time. After training, the time required for the delegated work was the same for both the assistants and the dentists. In the May 1971 issue of the *Journal of the American Dental Association* these same investigators reported on the dental team concept and compared the results with the proficiency basis and training phase. An increase in productivity of more than 130 per cent was achieved by the dentist using four trained auxiliaries, compared with a dentist working in the conventional manner with one trained auxiliary. With the advent of expanded functions, one important observation was the tremendous need for overall additional training.

More recently Rosenblum<sup>1</sup> reported on an experimental paedodontic auxiliary training program which was conducted at the University of Minnesota Division of Paediatric Dentistry. The objectives were to identify the personal and educational qualifications necessary for trainees, to determine the type and extent of training for the duties delegated, to compare quality and quantity of performances by auxiliaries and senior dental students, and to correlate quality of dental treatment rendered with the trainee's aptitude scores and grades. Experimental and control teams were arranged. Dental assistants with previous experience were selected. These young women were given an

11 months' training. Rosenblum suggests that for auxiliaries with previous dental experience a three month (12 week) program is adequate. The auxiliaries were taught to apply rubber dam, take alginate impressions, prepare study models, adapt matrices, insert, carve and finish restorations, adapt and cement stainless steel crowns, fabricate space maintainers, perform prophylaxes and apply fluoride. The experimental team performed an average of 40 per cent more procedures than the control team.

In February 1969<sup>7</sup> the Prince Edward Island Department of Health received a Canadian Government Public Health grant to study whether dental hygienists who insert and finish dental restorations in cavities prepared by dentists could increase the dentists' productivity sufficiently to make this kind of auxiliary feasible in a private dental office. The island had 29 dentists as at December 31, 1970, with a dentist population ratio of 1:3,793. The following results are taken from an unpublished progress report of October 15, 1970.

Three dental hygienists were given two and a half months' training at the Faculty of Dentistry at Dalhousie University in Halifax. The hygienists were trained to apply rubber dam, matrix retainers, cavity liners and all types of protective bases. They were also taught to insert, carve, contour, finish and polish silver amalgam, silicate, plastic and composite resin dental restorations.

The two year study, which was half completed at the time of this report, took place in six private dental offices and a special public health clinic for children. In the public health clinic, various combinations of dental hygienists and assistants were also evaluated through productivity records, work sampling and time studies. The private practice part of the study was further enlarged by the addition of three more hygienists who were given a two month course at Dalhousie. These three are being employed by three dentists who are paying all costs. Any changes in productivity will therefore be most meaningful.

An increase of 82 per cent occurred when a third operator and a trained hygienist were added to a public health clinic with two operatories, one dentist and a dental assistant. Since this 82 per cent was for the first two-thirds of the recording phase, an overall increase of 108 per cent in productivity is projected.

Complete information was difficult to obtain when the hygienists worked in private offices because of the many variables which included: (1) hours of work, (2) type of equipment, (3) office layout, (4) number of assistants, and (5) adaptability and attitude of the dentist. However, these differences are not altogether undesirable because if an auxiliary is to be of any value she must be effective under the wide range of conditions found in different practices. The dentists felt that the trained hygienist was a valuable aid. The quality of their restorations was graded as excellent, as was patient acceptance.

One thousand adults and 1,000 children were treated. The report also said that the addition of a second trained hygienist in a four chair dental trailer would allow provision of complete dental care for up to 4,000 children.

A similar two year study<sup>8</sup> is now proposed in Ontario with eight hygienists and assistants assigned to eight private offices.



## Wells Committee

In September 1970 a report on dental auxiliaries was submitted to the Canadian government<sup>9</sup> by the Wells Ad Hoc Committee. The group examined the state of dental health in Canada and commented at length on the need to improve the supply and distribution of dental manpower and the organizational pattern of dental health services. The various categories of dental auxiliaries in Canada and elsewhere were discussed in terms of their productivity and utilization, their duties, contributions to health and their acceptability by the public and profession. It was agreed that both dental assistants and hygienists should have their existing duties expanded. Recommendations were made that dental assistants who have passed an accredited training program be licensed to perform the following additional tasks: taking impressions for study casts only, placing and removing rubber dam and matrices, placing temporary restorations, removing dentures, rubber cup prophylaxes, applying anticariogenic agents to teeth, supervision of other forms of topical anticariogenic agents, exposure and processing of radiographs and photographs, and other duties that may from time to time be approved by provincial licensing bodies.

The Ad Hoc Committee also recommended that hygienists be delegated tasks in addition to those they now perform. Their present duties include preliminary examination of patients and provision to the dentist of dental health data, scaling and polishing of teeth, topical application of anticariogenic agents, patient and community education in oral health, exposing and developing radiographs, extra-oral duties designated by the dentist, first aid, and application of rubber dam. Upon completion of additional training, said the committee, hygienists should be allowed to apply temporary sedative dressings to hard and soft tissues, take impressions for study casts and for actual fabrication of dental appliances or prostheses, repair artificial dentures and place and remove matrices and orthodontic bands. They should also be allowed to place and finish amalgam, silicate and plastic restorations and all types of cements, prepare and restore teeth with plastic filling material and undertake other duties which may from time to time be approved by provincial licensing bodies.

The report stated that the training for dental assistants should take place in order of preference, in one or more of the following settings: approved dental education and service clinics, faculties of dentistry, clinical teaching faculties developed in non-university education settings and offices of dentists participating in the training program.

Although performance of expanded functions does not require that the auxiliary have a scientific background comparable to the dentist, it is essential that the training be consistent with the responsibilities being delegated.

The Ad Hoc Committee recommended that the present university programs for hygienists be retained and new diploma programs be established at other post-secondary institutions. It urged that the clinical component of the hygienists' training be in approved central dental and educational service clinics or faculties of dentistry. The program length should be a minimum of two academic years.

The creation of a new type of auxiliary was not advised. Instead, the report favoured expanding the permissible duties of the hygienist and increasing those of the chairside assistant to encompass many of the present routine technical tasks of the hygienist. These duties would enhance the educational and preventive aspects of their work.

## Conclusions

It is apparent that expansion of the duties of our auxiliary personnel is essential for the future of dentistry for children. The paedodontist will still be the focal point. However, his training will have to be altered so as to work not only with patients and their parents, but also with a great many people who will function as essential components of the dental team. Not only will dental auxiliaries be trained for expanded duties, but dental students will have to be trained to use these auxiliaries in their new role. The instructors must also be familiar with the new programs.

Hygienists with or without expanded duties could be utilized more efficiently if more than one were used by each dentist to provide regular recall service and preventive therapy for a great many more patients. If the dental assistant's role is enlarged, the hygienist with expanded duties could act as a new type of therapist. She would then follow the paedodontist from chair to chair as in the Prince Edward Island and Louisville studies. In this way the paedodontist could increase the productivity of his private practice. He would diagnose, supervise clinical procedures and direct the dental team. These events would be particularly significant for group practices.

It is also conceivable that as efficiency increases, the cost of dental services to the public will decrease. By streamlining our traditional work habits for practice in the 1980s, the patient, the dentist and the entire population will benefit.

The foregoing article is based on a paper delivered to the American Academy of Paedodontics, Dallas, Texas, on August 31, 1971.

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## Dental morphology of Indians and Eskimos: its relationship to the prevention and treatment of caries

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Toronto

*This paper describes some of the more common traits encountered in the Indian and Eskimo dentition. It is probable that in the future increasing numbers of dentists will have the opportunity to treat people of the Mongoloid race. Therefore it is important for dentists to be aware of certain special dental characteristics and problems they are likely to encounter in these patients.*

*Cet article décrit quelques-uns des traits les plus communs que l'on rencontre dans la dentition des Indiens et des Esquimaux. Il est fort probable qu'à l'avenir les dentistes auront de plus en plus l'occasion de traiter des gens de type Mongoloïde. Il est donc important pour eux d'être au courant de certaines caractéristiques dentaires spéciales ainsi que de certains problèmes qui se poseront avec ces patients.*

The dental health of Canada's Indian and Eskimo population is a source of increasing concern to governments and the dental and medical professions. There is also an increasing demand for dental care among the Indians and Eskimos themselves. In the Eskimos of the eastern Arctic the trend toward a more urban way of life is accompanied by increasing dental caries rates<sup>1</sup> and a greater need for dental treatment.\* Matching these changes is a growing awareness among Indians and Eskimos of the advantages of a healthy dentition. This trend should give many more dentists in Canada the opportunity to treat significant numbers of Indians and Eskimos.

These groups can present special problems in the examination and care of the dentition because of their special dental morphology. Since all the dental schools are in the southern parts of the country and located far from Indian or Eskimo settlements, dental students do not have the opportunity to treat these people in sufficient numbers to observe the variability of their dental anatomy.

Research scientists are often criticized for not producing data of immediate assistance to the general practitioner. This paper presents data from both dental and anthropological literature and attempts to demonstrate the value of such information to the dentist who may be called upon to treat these groups. The variations in permanent teeth described in this article certainly do not include all of the traits associated with the North American Indian and Eskimo dentition. They do, however, represent those most prevalent which may be crucial to the prevention and treatment of dental caries in these groups.

### Shovel-shaped incisors

The most common characteristic found in the Mongoloid dentition is the shovel-shaped incisor (Fig 1). The lingual surface of the incisor crown displays a build-up of the marginal ridges with an apparently depressed portion in the central section of the lingual surface. In fact, the depression is only an artefact of the marginal ridge build-up. The buccolingual thickness of the tooth in this area is as great as in teeth with smaller or non-existent marginal ridge development, and is comprised of enamel and dentine.

The maxillary incisors usually display the largest expression of shovelling, but it may be noted to a lesser extent on mandibular incisors.





Fig 1 Maxillary cast of Athabaskan Indian illustrating shovel-shaped central incisors and barrel-shaped lateral incisors.



Fig 3 Mandible of Thule culture Eskimo. Note worn occlusal tubercle on premolar in left portion of illustration and resulting periapical lesion from pulpal exposure illustrated on right. Also notable are buccal pits of molars without enamel lining.



Fig 2 Cast of Eskimo maxillary premolar with large occlusal tubercle.

Most studies indicate an incidence of this characteristic approaching 100 per cent in Indians<sup>2</sup> and Eskimos<sup>3</sup> but in general the Indian displays a larger expression of this trait than do Eskimos.

The interesting part of this trait is a small pit or groove at the confluence of the marginal ridges in the cingulum area of the crown. This area is a frequent nidus for the development of caries. It must be carefully examined, since a lesion may appear small, but upon excavation a large cavity may become evident at the dentino-enamel junction.

#### Barrel-shaped incisors

The cingulum area of the lingual surface of the incisors may exhibit a bulging of the tooth structure

which sometimes extends to the incisal edge (Fig 1).<sup>4</sup> As a result the incisal area forms a circular shape with a depression in the central area which is again a nidus for the development of dental caries. Maxillary lateral incisors are most commonly affected.

#### Premolar occlusal tubercles

It has been demonstrated that premolars may develop a projection from the occlusal surface.<sup>5-7</sup> This projection, consisting of enamel, dentine and usually a pulp horn, is found in the mesiodistal midline on the occlusal slope of the buccal cusp (Fig 2).

Again this trait is a Mongoloid one, but occurs rarely even in this group.<sup>7</sup> While it is situated in a self-cleansing area and is rarely the primary focus of caries, it causes complications when preparing a premolar for an occlusal restoration. It is extremely easy to expose the pulp within this structure if the tubercle is removed with a drill.

When the pace of attrition exceeds the rate of deposition of secondary dentine, the tubercle may be reduced leaving a minute pulp exposure in an otherwise caries-free tooth. At least one example of this has been noted in Eskimo skeletal material (Fig 3).

#### Buccal pits with enamel

Eskimo molars indicate a rapidly increasing caries incidence. Pedersen<sup>3</sup> has demonstrated that a large percentage of buccal pits of Greenland Eskimos have no enamel lining. I have also noted this in Canadian Eskimos, although no figures are presently available (Fig 3). The incidence for Indians has not been determined to my knowledge.

In treating Eskimos, preventive measures should be employed at an early stage to inhibit the development of caries in this area. Pedersen<sup>3</sup> observes that the



buccal pits are usually the first site of caries in the Eskimo dentition.

### Third molar agenesis

The high percentage of congenitally absent third molars in Indians and Eskimos may radically affect the method of treatment for these groups. Between 26 and 37 per cent of Eskimos lack at least one third molar,<sup>3, 8</sup> while Indians show a frequency of 13 per cent.<sup>9</sup>

The dentist should be aware that if he extracts one molar the patient may then only have one remaining molar in that arch. Endodontic treatment may therefore be preferable to save a molar that might otherwise be sacrificed.

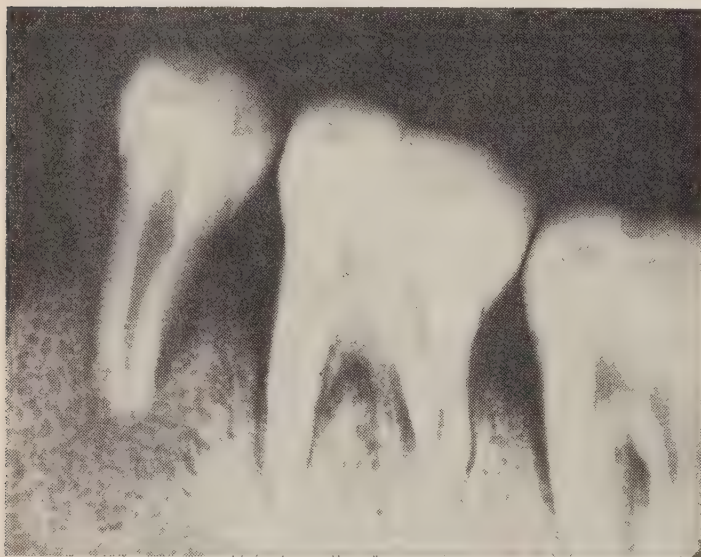


Fig 4 Radiograph of mandibular first molar with three roots.

### Three-rooted molars

Endodontic treatment or extraction of molars presents other problems. Several recent papers have noted the high incidence of an extra root on the mandibular first molars.<sup>10-13</sup> Although there have been conflicting reports about the possibility of detecting these roots, a recent study of Eskimo skeletal material revealed that the roots could be identified radiographically (Fig 4).<sup>14</sup>

### Attrition and abrasion

Eskimos consider teeth as important as a third hand. Many women chew skins, and most men employ

their teeth in their everyday work. The dentist must always ask the patient for what purposes his teeth are used so that an extraction will not seriously affect the patient's way of life. Extensive erosion and loose teeth do not necessarily mean that the teeth must be sacrificed even though in other cultures they may be considered useless. To the patient the loose teeth are probably much more satisfactory than dentures.

### Conclusion

The dentist must be constantly aware of morphological variations in teeth when treating all his patients. This paper records some of the more common variations found in Indians and Eskimos and their relationship to the prevention and treatment of caries. Its aim is to indicate possible problems and to demonstrate that research in dental morphology is more than just a subject for esoteric study.

\*Dental studies of Canadian Eskimos have been supported by a grant from the National Research Council through the International Biological Program, Human Adaptability Section.

Doctor Mayhall is a research associate in the Department of Anthropology and in the Faculty of Dentistry, University of Toronto.

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# Clinical evaluation of an aged stannous fluoride-calcium pyrophosphate dentifrice

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*A caries-preventive dentifrice was subjected to prolonged storage at 80°F in order to test the durability of its qualities. Samples of the aged dentifrice were distributed to 677 schoolchildren, a socio-economic cross section of the community. All oral hygiene practices were left to the discretion of the individual. The results were evaluated at the end of two years.*

*Un dentifrice anti-carie fut entreposé pour une période de temps assez longue à la température de 80 F de façon à vérifier la durabilité de ses propriétés. Des échantillons de ce dentifrice furent distribués à 677 enfants d'âge scolaire, représentant toutes les classes socio-économiques de la communauté. On ne donna aucune directive précise en ce qui concerne l'hygiène buccale personnelle. On évalua les résultats au bout de deux ans.*

The caries-inhibiting effect of a stannous fluoride-calcium pyrophosphate dentifrice (*Crest*) is well documented, and it has been awarded an "A" classification by the American Dental Association Council on Dental Therapeutics.<sup>1</sup> During the 10 years preceding this classification, the dentifrice was subjected to an extensive clinical testing program. One phase of this testing program was directed toward determining whether this dentifrice was still an effective anticaries agent after prolonged storage. This report describes the results of a clinical evaluation of this dentifrice after being stored at an elevated temperature for a long period of time. The combination of temperature and time created an environment for the dentifrice known to be more severe than normally found in commercial distribution and storage.

## Method

A double blind clinical investigation was designed to evaluate the dentifrice after it had been stored at 80°F in a room with a thermostatically controlled temperature for approximately 10 months before being transferred to the test site. It was stored at room temperature at the test site until it was distributed to the subjects. The total time from manufacture to distribution to subjects was almost one year. The control dentifrice was the same as the test dentifrice except that it had no active ingredients and was not subjected to test storage conditions.

A sample of 677 elementary school children, grades 2 to 6 inclusive, was recruited with parental consent from an urban population in the city of Jasper Place, Alberta. The sample represented a socio-economic cross section of the community. The fluoride content of the communal water supply was negligible (0.1 ppm). For six months prior to the initial examination, all subjects were supplied with the control dentifrice to minimize a possible carryover effect from previous use of a commercially available caries-inhibiting dentifrice.

Immediately following the initial visual-tactile examinations, the subjects were classified by age, sex and visual-tactile DMFS. The subjects were then assigned by random number to one of the two dentifrices, identified only by code letter. The dentifrice and toothbrushes were distributed immediately following the assignment and further supplies were given out at approximately two month intervals throughout the two year study period.

The visual-tactile examinations were supplemented by a five to seven film bitewing radiographic survey



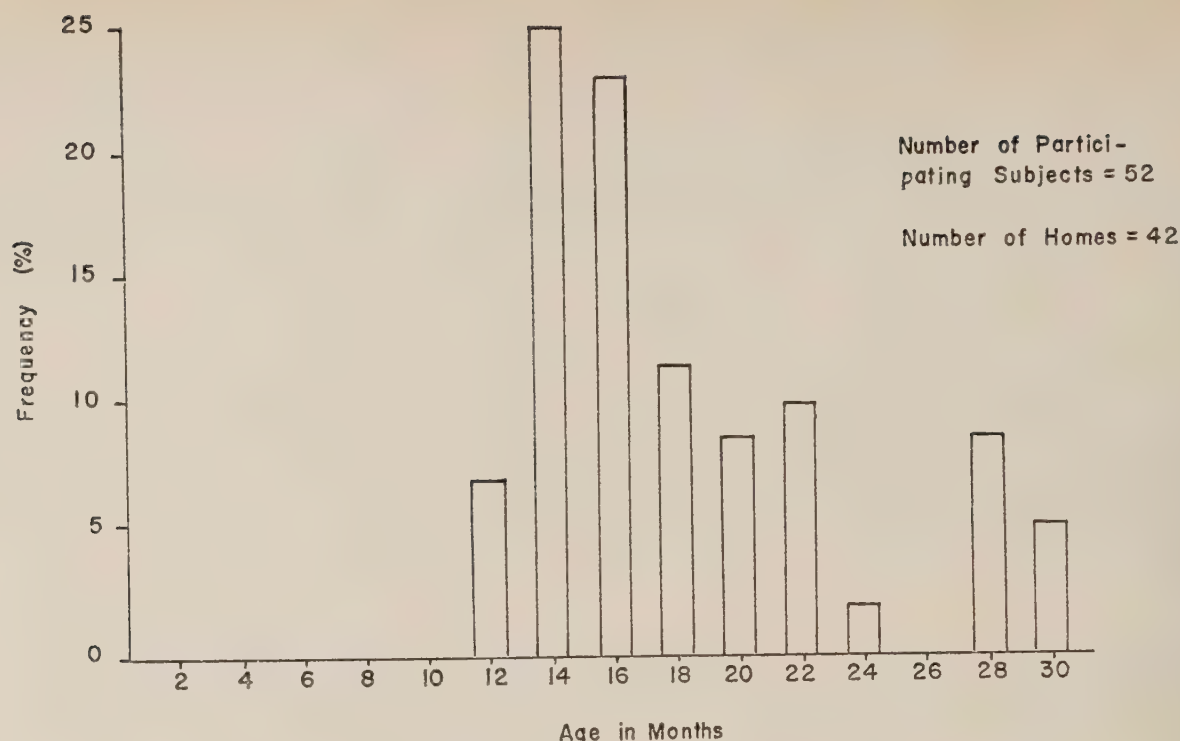


Fig 1 Frequency distribution of the ages of the test dentifrice at termination of study.

for each subject. All examinations and radiographic interpretations were made by the same investigator and restricted to the permanent dentition. Every effort was made to maintain consistency in diagnostic criteria, radiographic technique, films and film development, exploratory instruments and field working conditions. The examinations were repeated after 12 months and again after 24 months at the termination of the study.

A dental health education program, including films and demonstrations, was initiated in the participating schools. This program was conducted by a dental hygienist under the direction of the investigator. It was directed primarily toward the teaching staff, but included a number of classroom presentations. The program was designed to create and maintain an interest in dental health among the faculty and study participants. Dentifrice usage was left to the discretion of the individual.

When the study ended, a survey of 42 homes containing 52 study participants was conducted to determine the age of their test dentifrice.

## Results and discussion

Table 1 gives a summary of the initial balance of the subjects completing the indicated portion of the study. No important differences were evident in the initial group balance at the beginning of the study, nor was this balance disturbed by sample attrition as the study progressed.

Table 2 summarizes the mean caries increments for the DMFT and DMFS indices after 12 and 24 months. Statistically significant ( $\alpha = .05$ ) caries reductions were observed for the test dentifrice after 12 and 24 months, based on both the DMFT and DMFS in-

Initial balance for subjects completing indicated portion of the study

Table 1

|                               | Dentifrice | N   | Sex |     | Age   |       | DMFT |      | DMFS  |      |
|-------------------------------|------------|-----|-----|-----|-------|-------|------|------|-------|------|
|                               |            |     | M   | F   | Mean  | Range | Mean | SEM* | Mean  | SEM  |
| Subjects starting test        | Control    | 329 | 171 | 158 | 10.17 | 6-15  | 6.33 | .290 | 12.44 | .632 |
|                               | Test       | 348 | 185 | 163 | 10.22 | 6-15  | 6.27 | .272 | 12.10 | .599 |
| Subjects completing 12 months | Control    | 267 | 138 | 129 | 10.17 | 6-15  | 6.24 | .314 | 12.18 | .668 |
|                               | Test       | 281 | 152 | 129 | 10.12 | 6-15  | 5.90 | .282 | 11.35 | .617 |
| Subjects completing 24 months | Control    | 216 | 110 | 106 | 10.15 | 6-15  | 6.16 | .342 | 12.09 | .733 |
|                               | Test       | 231 | 123 | 108 | 10.10 | 6-15  | 5.88 | .307 | 11.40 | .682 |

\* SEM is the standard error of the mean



| Interval  | Dentifrice | N   | DMFT Index |      |             |              | DMFS Index |      |             |              |
|-----------|------------|-----|------------|------|-------------|--------------|------------|------|-------------|--------------|
|           |            |     | Δ DMFT†    | SEM* | % Reduction | Probability‡ | Δ DMFS†    | SEM  | % Reduction | Probability‡ |
| 12 months | Control    | 267 | 2.09       | .139 |             |              | 5.06       | .280 |             |              |
|           | Test       | 281 | 1.61       | .110 | 23.0        | .0033        | 3.94       | .202 | 22.1        | .0006        |
| 24 months | Control    | 216 | 3.62       | .223 |             |              | 8.39       | .448 |             |              |
|           | Test       | 231 | 2.89       | .179 | 20.2        | .0054        | 6.51       | .343 | 22.4        | .00037       |

†Δ DMFT and Δ DMFS are the mean increments for the respective indices

\* SEM is standard error of the mean

‡ Probability means that a difference as large or larger could have occurred by chance alone

dices. The probabilities given are based on a normal deviate test.<sup>2</sup>

Figure 1 shows the frequency distribution of the ages of the test dentifrice found in the participants' homes at the end of the study. None of the test dentifrice samples was less than 12 months old, with the majority of the samples being from 14 to 18 months old. Approximately 15 per cent of the subjects were using a dentifrice at least 28 months old.

## Summary and conclusions

A two year double blind study of the efficacy of a stannous fluoride-calcium pyrophosphate dentifrice was conducted after the dentifrice had been stored at 80°F for 10 months. The sample population of 677 schoolchildren was a socio-economic cross section of the community. All oral hygiene practices were left to the discretion of the individual. Accepted caries increment study methods and criteria were used throughout the study. At study termination, a home

survey was conducted to determine the age of the dentifrice in use at that time.

After two years, a statistically significant caries reduction was observed. The difference in caries increment between the control dentifrice and the test dentifrice must be attributed to the test dentifrice.

A survey of the age of the test dentifrice in use by the subjects at the termination of the study found the dentifrice to be at least 12 months old.

This study indicates that *Crest* can be considered an effective caries-inhibiting agent after being stored for a year or more at room temperature.

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(Continued from page 125)

look to the future for ways and means by which the insurance and investment programs might serve the membership more effectively. Dialogue was good, questions meaty and suggestions helpful and stimulating. The Insurance and Investment Council will study the proposals and attempt to develop them for future presentation to the Board of Governors. The consensus seemed to be that there was lots of room for expanding the National/Provincial Insurance and Investment Package and that the potential for serving the membership is without limit. The essential ingredients are, of course, cooperation and participation by eligible individuals and groups.

## Fluorides and fluoridation

On February 15, 1972, a report entitled "Environmental Fluoride" by Doctor D. Rose and Mr. J. R. Marier of the National Research Council was released

to the news media. The report was, we understand, the first of several to deal with environmental hazards. Mr. Marier, in personal conversation, indicated his comments tend to incriminate fluorides because of the potential hazards of high total fluoride ingestion in areas where single concentrated sources or multiple trace sources are available. Copies of the National Research Council's report were obtained and referred to the Association's Research Council consultant for an appropriate analysis. As an interim measure, a brief press release was issued on behalf of the Association indicating that the potential hazards referred to in the report had all been thoroughly investigated by other competent researchers and that, under controlled conditions, water fluoridation and fluoride dentifrices were beneficial and safe caries preventive measures.

Our consultant's analysis of the NRC report has already been made available. It continues to support the Association's published position on fluorides and fluoridation (see 1971 *Transactions*, page 166, para. 2).



## Book Reviews

### Full Mouth Restoration in Daily Practice

*Elliot Feinberg. Toronto, J. B. Lippincott Company, 1971. 158 p. Illus. \$23.75*

Doctor Feinberg explains that his 158 page combination atlas and reference text "is intended as a guide for the very large percentage of restorative dentistry being constructed daily in general practice which of necessity requires a practical approach that can be easily applied."

The book has merit for dentists who were not trained recently and who have been remiss in attending dental meetings and following the literature. The author acknowledges the influence of I. Franklin Miller whose philosophy and techniques are reflected throughout this book.

The clinical illustrations are excellent but the text is sketchy. Since there are no references, it is difficult for the reader to make a thorough study of the principles and techniques described. Except for such recently introduced materials as Imput and Duralay, there is little that is new and that cannot be found in previous texts.

Chapter 1 deals with full shoulder preparations. It sets out eight advan-

tages claimed for the circumferential shoulder preparation, but only three are convincing: (1) the presence of a definite finish line, (2) a greater area of embrasure space, and (3) elimination of teeth that are bucco-lingually oversized. Some other alleged advantages, like decreased sensitivity and ease of parallelism, are in fact disadvantages of the full shoulder preparation.

There are useful clinical hints about fibre-optic light for enhanced visibility, the cutting of a depth guide for controlled tooth removal and supporting the head of the handpiece with the left thumb while paralleling preparations with a diamond point.

The description of copper band impressions in chapter 2 is similar to what one may find elsewhere; but there is no mention of other impression materials that could benefit recent graduates. The Starlite Feinberg Bandlever for removal of compound copper band impressions appears like a valuable contribution for dentists who use that material.

Chapter 3 depicts some good and reliable methods of constructing temporary coverage. The accompanying illustrations are particularly good and the detail is justified for this important step in restoration.

The Duralay transfer coping technique in chapter 4 is a practical compromise for the cast transfer coping. The introduction of Imput for securing an index and for registration of centric relation is practical; however, a material with more body and less flow would be easier to handle.

Chapters 5 and 6 on fabricating gold veneer restorations may help readers who still use acrylic veneers. Information on porcelain fused restorations would be more in keeping with present day needs.

Chapters 7 and 8 on gingival and corrective bone surgery have some helpful hints for general practitioners but may raise many questions from periodontists.

The author reveals his clinical experience by the manner in which he deals with the redistribution of leverage forces on anterior teeth and the aesthetic improvement of these teeth. His chapter on the restorative approach for non-vital teeth is disappointing. The prob-

lems are not clearly defined and some of his solutions are misleading. For example, I cannot accept routine removal of the clinical crown of an anterior tooth so that the tooth is flush with the gingiva; and I do not see why pins should be used in intact dentine of an endodontically treated tooth when a post space is already available in the root canal.

Interesting examples of root hemisection are illustrated, but only some of the indications for this procedure are presented. The rationale for telescoping in full mouth cases is clearly presented but with insufficient emphasis on the possible disadvantages of this procedure.

The final chapter deals with the mechanical management of occlusal stress. In it the author applies basic engineering concepts to reduce or minimize stress mechanically and recommends that all final restorations be fabricated only after periodontal health has been obtained. Avoiding an erudite discussion of occlusion, he presents a practical philosophy which no doubt is the secret to his clinical success.

Doctor Feinberg's book has achieved only a part of what he set out to do. The repetition of many procedures so effectively dealt with in previous texts and the obsolescence of others could limit its value.

*Harry Rosen*

### Myofunctional Therapy in Dental Practice

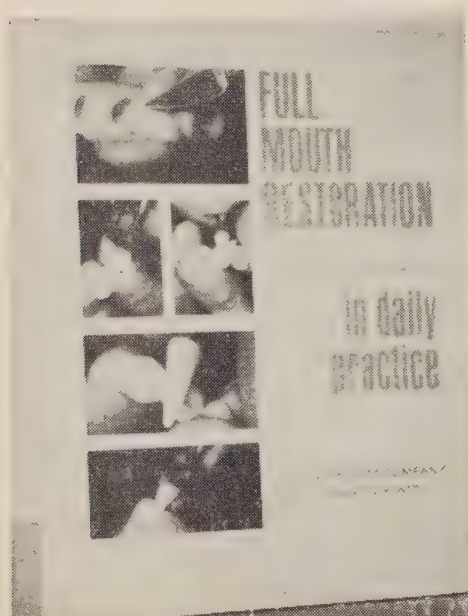
*Daniel Garliner. Brooklyn, Bartel Dental Book Co, 1971. 177 p. Illus. \$22.50*

A myofunctional therapist, as defined in this book, is a person trained to diagnose and treat "improper muscle and swallowing habit patterns." By retraining the tongue it is hoped that damage to the occlusion will be stopped and, in some cases, reversed. The training necessary to become a myofunctional therapist is not specified, but it is not available at universities as this specialty is still "too clinical for classroom instruction."

The book has two sections, the first dealing with the problem, its cause and diagnosis, and the results of myofunctional therapy. The second section is concerned solely with methods of treatment.

Mr. Garliner, a practising therapist in Buffalo, New York, has written this book mainly to inform us about myofunctional therapy. He appeals to the dentist to include the myofunctional therapist as part of the dental team.

After a brief introduction, he explains how a deviate swallow can destroy oc-





clusion. He attributes the deviate swallow almost entirely to incorrect feeding in infancy. He contends that bottle nipples are generally too long and the flow of milk is too rapid.

There is a brief chapter on diagnosing the incorrect swallow and classifying the resultant open bite.

Garliner feels that myofunctional therapy can aid not only orthodontists but also prosthodontists, periodontists and oral surgeons; chapter 5 explains how. It contains 46 pages of before and after photographs of cases he has treated with myofunctional therapy.

The last chapter in the first section seems misplaced. A reprint of an article written by Garliner asks that medical and dental practitioners recognize the myofunctional therapist — a theme which is repeated in the introduction to the book.

In the second section, the author shows how a myofunctional therapist treats a typical case. Here the reader can follow a case from the time the patient presents until the problem is more or less arrested. Therapy involves an "intensive treatment period" requiring 22 visits and a follow-up period lasting another nine months. After diagnosing and explaining the problem to the patient and the parents, the therapist uses an elaborate series of exercises. Everything from marshmallows on a string and tug of war using the lips, to word charts, pictures and an exercise called Mother's Delight is used and explained in detail. All the necessary consultation forms, evaluation charts, word lists and time charts are presented in a 30 page appendix.

The book's virtue is that it makes us aware there is such a thing as a deviate swallow which can cause or maintain an open bite. However, few dentists could actually spend the time necessary to treat a deviate swallow by the methods outlined by Mr. Garliner. Patient motivation could also present a problem.

I feel that myofunctional therapy has a definite place in the treatment of deviate muscle and swallowing patterns. However, as Garliner says, it is only an aid, not a substitute, for dental treatment.

R. S. Jackson

### **American College of Dentists: History, the First Fifty Years**

O. W. Brandhorst. St. Louis, John S. Swift Co, Inc, 1971. 571 p

Upon his retirement as secretary for a quarter of a century, Doctor Otto W. Brandhorst undertook to gather the complete record of the American College of Dentists for its first 50 years. The result of his effort is the publica-

tion of this book of 571 pages. In meticulous detail he has set forth the historical facts related to the College from its beginnings.

The College was organized in 1920 by a small group of dentists imbued with high ethical standards. While adhering to original concepts the College has shown remarkable foresight and achieved many accomplishments throughout its history. In doing so care has been exercised in not attempting to usurp the prerogatives of existing professional organizations. Indeed, after initiating movements the College has readily turned over the particular project to appropriate organizations.

In the 1920's dental journalism was largely dominated by commercial interests. The College established a Commission on Journalism which eventually brought journalism under the control of the profession. At a time when the question of health insurance was only a glimmer on the horizon on this continent, the College financed an investigation by sending capable investigators to European countries. Their report resulted in the publication of a book in 1932 which stands up well today as an initial impartial study of the subject. Over the years the College has initiated many other projects which have contributed in no small measure toward improving the stature of the profession.

The College has made creditable contributions to dental literature. Besides publishing a journal of high calibre, it has issued and distributed numerous books, reports, brochures and pamphlets.

In earlier years the carefully selected membership was confined to dentists of the United States and Canada. Gradually, the membership has become international in scope. Canadian dentists have played a part in the work of the College. Three have served as presidents.

D. W. Gullett

### **The Universal Appliance**

A. E. Stroller. St. Louis, The C. V. Mosby Company, 1971. Illus. 161 p. \$19.70

The purpose of this book is to give a comprehensive description and explanation of the universal orthodontic appliance and its use. Doctor Stroller, a recognized authority on this subject, has executed his task with logic and precision.

There is one short 4½ page chapter on forces in orthodontics and another dealing with the normal position of the maxillary first permanent molar. An introduction to treatment procedures is given in chapter 12, and the approach is general rather than specific. The remaining 11 chapters describe in de-

tail the mechanics of the appliances, including wire bending exercises. The illustrations are among the finest I have seen in an orthodontic textbook.

On the assumption that the reader is an expert in orthodontic diagnosis, this book provides an excellent description of one of the most exacting methods of "getting there" once the decision has been made on where to go.

Logic and precision are the chief requirements for the use of this appliance which originated with Spencer Atkinson more than 30 years ago and evolved into its present form via a group of perfectionists better known as the Pacific Coast Consultation Group.

The universal orthodontic appliance has not been used extensively in eastern Canada but this book may provide the impetus. In any event, it is a most welcome addition.

Gunnar Lie

## **Additions to the Library**

BATES, J. F. Partial denture construction: a laboratory manual. Bristol, Wright, 1970. 128 p. Illus. \$7.95

BEESON, P. B. and McDERMOTT, W., ed. Cecil-Loeb textbook of medicine. 2 vols. Philadelphia, Saunders, 1971. 1923 p. Illus. \$30.90

BRITISH SOCIETY FOR THE STUDY OF ORTHODONTICS, 1969/70. Transactions, Vol 56. Bristol, Wright, 1971. 222 p. Illus

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## Keeping practising dentists informed

The most dramatic illustration of the increasing emphasis dentistry places on keeping its practitioners abreast of current knowledge is provided by the growing list of provinces that require participation in continuing education as a condition of licence renewals. In the vanguard are Alberta and Quebec, but other provinces may not be far behind.

Much has been said and written about the "information explosion" and the attendant problem of keeping the dentist informed of new developments. Dentistry has moved in various ways to meet the problem, and the trends which have emerged include:

Sponsorship by the CDA of a national conference on continuing education in September of this year; and

Increased availability of Canadian continuing dental education programs and the rising number of them listed in CDA and provincial publications.

Adding a new dimension is the CDA tape cassette program of continuing education inaugurated last month. This service is available on a subscription basis to Association members. It consists of half-hour audio tapes and accompanying illustrations. Produced for the Association by Medifacts Limited, of Ottawa, it provides monthly refresher courses on the latest dental advances affecting dental practice.

This program in sound and pictures will cover such major areas as restorative dentistry, complete prosthodontics, fixed and removable partial prosthodontics, public health and preventive dentistry, practice administration, radiology, paedodontics, orthodontics,

oral surgery, periodontics, endodontics, oral pathology and oral medicine. Each tape will consist of four to six scientific presentations together with up-to-date news of dentistry. The latter, produced in the manner of a news broadcast, will cover professional, legislative, national and socio-economic developments of interest to the dental practitioner. News sources from around the nation and the world, and from within and outside the profession will be used.

Subscribers to this effective instructional aid will be able to build up their own library of audiovisual presentations with material they can retrieve at the push of a button. The cassettes supplied in the CDA program may be used in any conventional cassette recorder now available on the market. However, the CDA will provide a recorder-playback unit to any dentist who wishes to purchase the equipment directly from Medifacts Limited.

It is apparent from these developments that the Canadian Dental Association is playing a major role in answering the growing demand for continuing education. Quebec and Alberta licensing boards have already established quasi-mandatory continuing education standards. Ontario and Manitoba licensing agencies are moving in the same direction, and other provincial licensing authorities have expressed interest. And as dentistry concerns itself to a greater degree with the on-growing education of its practitioners, licensing boards and the public are being assured that dentists are keeping themselves informed.



## Tenir les praticiens au courant

La meilleure illustration de l'effort que la médecine dentaire poursuit pour garder le dentiste continuellement au courant des progrès dans sa profession nous est fournie par la liste croissante des provinces qui exigent une participation active dans les programmes d'enseignement permanent comme condition de renouvellement des licences. L'Alberta et le Québec sont à l'avant-garde dans ce domaine, mais les autres provinces vont bientôt les suivre.

On a parlé et on a beaucoup écrit au sujet de "l'explosion de l'information" et du problème connexe de tenir le dentiste au courant des derniers développements dans son domaine. Ce problème a été abordé de façons différentes par la profession et les solutions retenues comprennent:

La tenue d'une conférence nationale sur l'enseignement permanent sous l'égide de l'ADC et qui aura lieu en septembre cette année;

L'accessibilité accrue des programmes canadiens d'enseignement permanent et leur nombre croissant paraissant dans les publications de l'ADC et autres publications provinciales.

Une autre nouveauté intéressante consiste en un programme d'enseignement permanent de l'ADC enregistré sur cassettes et inauguré le mois dernier. Ce service est disponible aux membres de l'Association qui auront souscrit au programme. Le cours consiste en une série d'enregistrements d'une durée d'une demi-heure accompagnés d'illustrations. Préparé pour l'Association par Medifacts Limited d'Ottawa, ce programme offre des cours mensuels de perfectionnement sur les derniers progrès susceptibles d'aider le praticien.

Ce cours audio-visuel traitera de sujets tels que: la dentisterie restauratrice, les prothèses complètes, les prothèses partielles fixes et amovibles, la santé

publique et la dentisterie préventive, l'administration du cabinet dentaire, la radiologie, la pédodontie, l'orthodontie, la chirurgie buccale, la périodontie, l'endodontie, la pathologie buccale et la médecine buccale. Chaque ruban offrira de quatre à six présentations scientifiques accompagnées des dernières nouvelles concernant la médecine dentaire. Ces dernières faites sous forme d'actualités traiteront des développements professionnels législatifs nationaux et socio-économiques intéressant tout particulièrement le praticien dentaire. On se servira de sources provenant de tout le pays et du monde, de l'intérieur et de l'extérieur de la profession.

Ceux qui souscrivent à ce programme d'enseignement seront à même de constituer leur propre bibliothèque audio-visuelle et pourront retrouver le matériel qui leur est nécessaire à un simple toucher du doigt. Les cassettes utilisées pour enregistrer ces cours s'adaptent à tout magnétophone à cassette sur le marché. Cependant l'ADC fournira un magnétophone conventionnel à tout dentiste désireux d'acheter l'équipement directement de Medifacts Limited.

Il est évident après ce que l'on vient de voir que l'ADC joue un rôle primordial dans les solutions possibles au problème de l'enseignement permanent. Les bureaux qui émettent les licences en Alberta et au Québec ont déjà établi des normes presque obligatoires en enseignement permanent. L'Ontario et le Manitoba se dirigent dans le même sens et il est probable que les agences qui émettent ces licences dans les autres provinces suivent la même voie. Et puisque la dentisterie s'intéresse elle-même davantage au perfectionnement de ses praticiens, les agences émettant les licences ainsi que le public lui-même sont désormais assurés que les dentistes se tiennent vraiment au courant.



*The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.*

*Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association Dentaire Canadienne. Vous êtes invités à participer à cette section du Journal.*

## Dental records of airline personnel

I recently received a letter from the medical director of CP Air concerning the implementation of mandatory dental records for airline personnel. At a recent meeting of the airlines, they agreed to take the "first step" toward our total recommendations. This involves the recording of the names of dentists of all air crew.

My purpose in writing you is to not only thank the airlines for making a beginning, but to acquaint dentists who treat any airline personnel and to emphasize the need for comprehensive recording and record systems. I would also like to solicit the cooperation of non air crew who travel frequently by reason of a pass. Such personnel would be well advised to retain their own "cache" of dental records in a place of their choice.

The dental profession could speed this philosophy on its way with a modicum of time and effort.

*J. D. Purves, DDS  
President  
Canadian Society of Forensic  
Odontology*

## Forensic odontology

Interest in this branch of dental science has been renewed by the formation of the Canadian Society of Forensic Odontology. The founders of this organization are to be commended for their recognition of the need for knowledge and skill in this subject.

In an article published five years ago,<sup>1</sup> I pointed out "the importance and usefulness of accurate dental records in the identification of casualties from automobile, airplane, fire and other mass catastrophes, fatal accidents and mysterious deaths." I also urged "that the individuals appointed for an investigation should possess the ability and facilities to cooperate with the relevant laboratories and research workers."

Various journals and books have commented on the identification of bodies by teeth and jaws. Here are a few which may be of particular interest to dentists:

In an autobiography, the Earl of Bessborough,<sup>2</sup> a son of one of our former Governors-General, tells of the identification of an Eskimo by his teeth. While travelling in the Arctic regions of Canada he learned about the murder of an Eskimo who had taken another man's wife and would not return her to her husband. Two years later, a Mounted Police detachment found the bones of a man scattered about, probably by animals. The spinal column lay in its original position with portions of clothing beside it. The Eskimo guide, who knew the victim, identified the skull by certain irregularities of the teeth.

R. C. Sherriff, in his autobiography,<sup>3</sup> tells of a grocer who kept his stock of paraffin in a lean-to against the house. A spark from a neighbour's bonfire ignited a blaze in which the grocer and his wife perished. The only means of identification was by their teeth. At the time, Sherriff was an agent for the Sun Insurance Company in London, England.

An account of a murder by strangulation was recently given in *The Criminologist*. It begins with the discovery of a bundle of human bones in the basement of a bombed-out church in South London.<sup>4</sup> C. K. Simpson, professor of forensic medicine at the University of London, was called in to assist in identifying the victim. He deduced from his examination that this was not a normal air-raid casualty. As part of the examination of the remains, a photograph of the dead woman's skull was superim-

posed on a snapshot; it fitted exactly at all points. The victim's dentist was located and he identified the upper jaw and four fillings he had made.

Recently Mae Armatage<sup>5</sup> reported that "lip prints may some day be widely used to identify criminals. Two Japanese scientists have discovered — in a study based on 1,364 cases — that, like finger prints, no two lip-groove prints are exactly alike. Their system has already identified two wanted persons who left lip prints on envelopes. And, say Doctors Kazuo Suzuki and Yasuo Tsuchihashi of the Tokyo Dental College, a suspect's lip print can also be compared with prints left on beer cans and drinking glasses."

The identification of individual victims was formerly more usual. But with the advent of large hotels, nursing homes and hostels where fire may be a hazard, we now often witness tragedies in which many persons are involved. Dentists skilled in the forensic sciences should therefore be available when emergencies arise, and this is only possible if dental schools will provide the appropriate training.

*R. J. Godfrey, DDS  
64 Welland Ave  
Toronto 290, Ont*

- 1 Godfrey, R. J. Forensic dentistry. *J Ontario Dent Ass* 44:13, 1967.
- 2 Bessborough, Earl of. *Return to the forest*. London, Weidenfeld, 1962.
- 3 Sherriff, R. C. *No leading lady*. London, Gollansz, 1968.
- 4 Gordon, J. S. *Sherlock Holmes lives again*. *Readers Digest* (condensed from *The Criminologist*) Jan 1971.
- 5 Armatage, Mae. *The fascinating funnies*. *Readers Digest* (condensed from *Empire*) Nov 1971.

## Loi sur la denturologie

Au nom du Conseil Exécutif du Collège, permettez-moi de vous transmettre nos sincères félicitations pour votre éditorial traitant du Bill 266 et qui a paru dans le numéro de mars du *Journal de l'Association Dentaire Canadienne*.

*M. B. Archambault, DDS  
Régistrare adjoint  
Collège des chirurgiens-dentistes  
de la province de Québec  
Montréal 132, Qué*

## Quebec's denturology bill

Your editorial in the February Journal dealing with Quebec's denturology bill is very timely.



As president of the Montreal Dental Club I want to congratulate you on this article. I feel that the article as published will help us in our attempts to solve some of the problems that we are encountering with the proposed new way of practising dentistry.

*J. Thomas Elo, BA, DDS  
President  
Montreal Dental Club*

### **Dental hygienists and restorative dentistry**

I have just completed a six month special course in restorative dentistry. I will be using this knowledge when I return to Nigeria later this year. This course was made possible because of the kindness of the teaching staff of the University of Manitoba dental school to whom I am most grateful.

Throughout the course I leaned heavily on my previous medical training to help me grasp the basics of restorative dentistry, especially in anatomy and physiology. It was certainly good to be already familiar with terms like lingual, buccal, maxillary, and so forth. These terms are like Greek to a newcomer to the course. In dental materials instruction I was appreciative of both my pre-medical science course and biochemistry course in medical school.

I have been told that dental hygienists have been proposing to do all branches of restorative dentistry in Canada in the future. This seems to me to be a step backward. It may be all right to do this in Nigeria where modern dental care is almost non-existent, but surely not in Canada!

*W. D. Gutowski, MD, BSc(Med)  
Winnipeg, Man*

### **Calculus formation**

I have observed that any warm feeling in the head accompanied by pressure, which I consider to be pressure of a fluid nature, can induce the precipitation of calculus on the lingual surface of the lower anterior teeth; none of the hundreds of patients to whom I have told this have denied or questioned this explanation, and three of my most reliable patients have confirmed it.

This follows from the fact that fevers disturb the calcium balance in blood. If such imbalance occurs in blood, it seems reasonable that it could occur in all body fluids, including saliva. The imbalance could result in the precipitation of calcium salts, much of which could be excreted and would never show up as calculus on the teeth, especially in

persons who brush their teeth vigorously.

Slight fevers could cause some disappearance of the alveolar bone if body fluids succeed in drawing out calcium to replace that which may have been precipitated or excreted. I believe that bone is also dissolved by the pus which is formed in gingival pockets.

In addition, it is possible that smoking may raise mouth temperatures sufficiently to cause a precipitation of calcium salts.

Also, I think that slate-sharp calculus could do great harm to other organs in the body.

*Monica Mooney, DDS  
Saint John, NB*

### **Dental care for the mentally retarded**

In his letter in the February issue Doctor D. J. Kenny of Toronto observed that government is usually reluctant to provide more total health care for mentally retarded patients. Although this may be generally true, we at The Woodlands School have been more fortunate than most mental retardation institutions.

Firstly, with tremendous support from all departments and the medical and nursing staff, our dental office established general anaesthesia facilities in June 1970. With the help of our competent anaesthesiologists and nurses we are able to perform a wide range of surgical, restorative and periodontal treatments.

Also, although there are roughly 1,300 patients to be attended to by just one dentist, an effort is made to keep the interval between regular check-ups as short as possible.

The points raised by Doctor Kenny regarding prevention and diet are particularly interesting. For over a year now we have been developing a full program of prevention and education. Final year students from the dental hygiene program at the University of British Columbia work with the dentist in weekly rotation. Their assistance has been tremendous in periodontal treatment for patients and the education of patients and staff.

Besides regular lectures and presentations on mouth care, "brush-ins" are held regularly with small groups of concerned staff. Acceptance of these gatherings has grown steadily and the demand for them has increased. We hope to employ a full-time dental hygiene auxiliary for the summer months commencing this summer.

Of course, one of the things our dental hygiene program is trying to provide is a more sensible diet. We have found, so far, that by increasing the awareness of physicians, nursing staff and others

concerned, we are beginning to achieve something positive in this direction.

In the last three years, I am very proud to say, The Woodlands School has become increasingly mouth conscious.

*E. A. Baja, DDS  
Dental Officer  
The Woodlands School  
New Westminster, BC*

### **Thiokol impressions**

Doctor Gibb commented in the February Journal concerning the copper band-thiokol impression technique I described in the October 1971 issue and I would like to clear up some points which he criticized.

I still maintain that a carefully fitted and controlled copper band with the right thiokol is less damaging to the gingival tissue than any retraction technique. Any slight damage from placing the band is a clean surgical wound which soon heals without any residual damage. Naturally, I assume that no dentist would force a band any further than to register the shoulder or finishing line which, I agree with Doctor Gibb, must not be placed too far under the gingiva.

With respect to the other points he mentioned:

1. Some thiokol materials may not be amenable to handling as I described. I use Surflex heavy-bodied material in the bands and regular-bodied material in the tray. These can be handled as I stated in my paper.

2. The heavy-bodied Surflex, when allowed to harden beyond the sticky stage, is so firm and stiff that the band will not sag even if it is not held until the material is fully set.

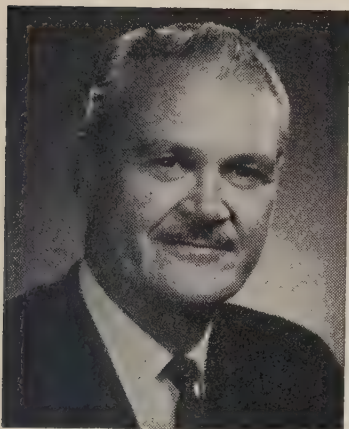
3. I have never had any difficulty with Getz trays interfering with the bands in place when the regular-bodied material is used in the trays and reasonable care is exercised.

4. For many years several of the largest commercial laboratories in Toronto have used epoxy resins for making dies with excellent results. I do not deny that a silver-plated die is equally good, but I question Doctor Gibb's comments on the shrinkage of epoxy materials. Some epoxy dies may shrink as he says, but the material used by the laboratory I deal with, called ATC, has been eminently successful in terms of accuracy of the resulting castings. ATC is so hard that it can scarcely be cut with a knife, and the die is less trouble to make than a silver-plated die.

*Carl Dubin, DDS  
2 College St  
Toronto 2, Ont*



## EXECUTIVE DIRECTOR'S PAGE



**W. G. McIntosh, DDS**

### **Dentistry and the Department of National Health and Welfare**

"Where does dentistry fit in the overall scheme of things in the health department in Ottawa?" This question comes up from time to time. And, since the Department of National Health and Welfare has just undergone a major reorganization, this is a good time to consider it.

The health side of the Health and Welfare Department now comprises three program branches: health protection, health programs and medical services.

The Health Protection Branch is to be composed of six organizational units dealing with: (1) foods; (2) drugs; (3) environmental health; (4) laboratory centres for disease control; (5) field operations, and (6) administrative services. These six units evolved from the former Food and Drug Directorate, Environmental Health Directorate, Communicable Diseases Centre and the Epidemiology and Nutrition Divisions.

The Health Programs Branch, formerly known as Health Insurance and Resources, is of prime interest to dentistry. This is the branch within which the Department's Dental Division will function and through which national policies relating to dentistry will be made.

"Through this branch," according to a government news release, "the Department proposes to take a more active leadership role in the development and improvement of the efficiency and effectiveness of health programs and delivery systems in order to maintain and improve the health status of Canadians.

"It is envisaged that within the branch there will be a new Directorate of Program Development and Evaluation which will focus its attention on the development of new program proposals including determination of priorities and forecasting resource implications."

The Health Programs Branch is headed by Assistant Deputy Minister J. L. Fry who will report, through Deputy Minister Doctor Maurice Leclair, to John Munro, Minister of National Health and Welfare.

The Medical Services Branch will continue to focus its attention on the provision of medical services to Indians in the provinces and to all residents in the Yukon and Northwest Territories. Emergency Health Services will also come under the jurisdiction of the Medical Services Branch.

Limiting our organizational description of the Department to these three main branches results in a marked oversimplification. Dentistry, for example, does have a direct or indirect input into each of the branches. However, under the present arrangements the profession's activities with government will be largely channelled through the Health Programs Branch.

### **Emblem for Dentistry in Canada**

The Fédération Dentaire Internationale has invited national association members and individual supporting members to submit designs for consideration in the competition for an international symbol of dentistry. The FDI General Assembly will choose the winning design at the World Dental Congress in Mexico City, October, 1972.

The Executive Council has received many compliments on the Emblem of Dentistry in Canada, approved by the Board of Governors in 1968. As a result, the Council decided at its March, 1972, meeting to place the Canadian design in the international competition.

### **Competition Act**

At its March meeting the Executive Council also approved the draft of a brief on the Competition Act for submission to the new Minister of Consumer and Corporate Affairs, Robert Andras. The consensus of the profession seemed to be in favour of fee guides developed and distributed by the provincial associations as a means of dealing fairly with both patient and dentist. This was the main point developed in the brief which was forwarded to Mr. Andras on behalf of the Association on March 20.

### **Annual Meeting and Convention**

The 1972 annual meeting to be held June 1 to 3 at the Bonaventure Hotel, Montreal, will include on its agenda many items important to the future of dentistry in Canada. Decisions will be made that could affect the course of our profession for years to come.

Reference committee hearings and Board sessions are open to all members of the Association. Why not come and participate in the decision making? After all, it's your future that's being decided.

The annual meeting is immediately followed by the annual convention which is being held this year in conjunction with Les Journées Dentaires du Québec. The scientific program is specially geared to match the interests of both general practitioner and specialist. Exciting social events have been lined up for your enjoyment and relaxation. Don't miss the learning or the fun. See you in Montreal ! ! ! !



## The Association

### "Fee guides help public as well as profession," CDA tells Ottawa

The health professions should be allowed to continue to use fee guides and fee schedules, according to the Canadian Dental Association.

The opinion is expressed in a brief on the proposed federal Competition Act approved by the Executive Council at its meeting on March 6-8 and submitted to federal Consumer Affairs Minister Robert Andras.

Referring to a section of the act which appears to prohibit fee guides and schedules, the Association pointed out that suggested fee guides neither fix nor determine the cost of any particular service to the consumer. "There is no contractual basis in suggested fee guides nor are there legal consequences for dentists accepting or rejecting the suggestion."

"Fee guides provide the individual dentist with a consistent and carefully studied base to which he may relate his fees. They also provide the consumer with a measure of security and fairness he would not otherwise have," said the brief.

In other actions, the Executive Council:

—Approved preliminary architectural drawings for an Ottawa headquarters building, and authorized the preparation of more detailed plans for presentation to the Board of Governors meeting in June.

—Approved and referred to the Council on Dental Services a preliminary report on dentistry's role in national health programs. The report, which urges that dental care be an essential component of national health care programs, sets out principles, priorities and guidelines for dental participation in such programs.

—Considered a brief for submission to the National Assembly of Quebec. The brief deals with Bill 266, the proposed "Denturologists Act."

### CDA offers continuing education tape cassettes

Beginning this month, the Canadian Dental Association will make available to its members, on a subscription basis, a continuing education program utilizing audio tape cassettes. It will be produced for the CDA by Medifacts Ltd of Ottawa.

The tapes will be distributed once a month to participating dentists and will be 37 minutes in length. Each monthly cassette will contain five or six short presentations dealing with some important aspects of dentistry, plus news. Each presentation will be four to six minutes in length. Enclosed illustrations will explain the operational steps described in the scientific presentations on the tapes.

The cost of the service is \$72 per year. Cassette playback units can also be purchased at very advantageous prices. For further information, please contact Medifacts Ltd, 33 Somerset St W, Ottawa, Ont, K2P 0H3.

## Dental Organizations

### Nova Scotia association urges children's plan

The Nova Scotia Dental Association, in an interim report to the provincial government's dental task force, has called for a comprehensive dental care program for children up to and including age three. The association envisages gradual expansion until the plan eventually covers all young persons to age 16.

Its recommendation is coupled to an education and preventive program and more extensive use of dental hygienists. The plan includes immediate provision of preventive, educational and diagnostic services by the government and the establishment of a voluntary prepayment plan for comprehensive treatment.

The Nova Scotia association has also recommended an expanded course of training dental hygienists into selected areas of dental care. These would include operative dentistry, orthodontics, prosthodontics and periodontics. Describing hygienists as the "right arm of the dentist," the NSDA sees their expanded role as a viable means of increasing dental services to the public.

The report also calls for fluoridation of water supplies in 30 Nova Scotia communities. At present, 18 communities in the province have fluoridated water systems.

Two new training centres for certified dental assistants were recommended for Sydney and Yarmouth. The report also calls for increased facilities at the Nova Scotia Technical Institute in Halifax and points to the need to establish training facilities for dental technicians at vocational schools or technical institutes.

Stressing the shortage of dentists and their concentration in populated areas, the report calls for an immediate start on an enlarged dental school at Dalhousie University, which currently is turning away three out of every four qualified applicants. The report also recommends the institution of location grants to attract dentists to underserved areas of the province.

The association also asks that the Nova Scotia Medical Care Insurance

R. M. LeBlanc, Montreal, who retires in July as registrar-secretary of the College of Dental Surgeons of the Province of Quebec, received a special award of merit from his colleagues at the annual Dental Secretaries' Conference, February 21-23. Pictured at the presentation are from left: Louis Bernier, CDA president; Doctor LeBlanc; D. C. T. Macintosh, secretary, Nova Scotia Dental Association; and H. L. Mussells, CDSPQ president.



## YOUR SECURITY

*This is the first of a series of articles on insurance and investment programs available through the dental profession.*

Canadian dentists are able to participate in a unique combination of insurance and investment programs designed and maintained by the dental profession.

The object of these programs is to enable individual dentists to enjoy the advantages of group participation. As the participating carriers are answerable to officially constituted dental groups, every protection is afforded participants in the way of maximum protection and reasonable premiums.

The Canadian and Provincial plans serving the profession were amalgamated October 1, 1969, and activities in this area are now overseen by the Canadian Dental Association's Council on Insurance and Investment.

Actual operation of the plans, in conjunction with the carrier companies, is handled by Canadian Dental Service Plans, Inc (CDSPI) which is wholly controlled by the dental profession.

This agency handles premium collections for the CDA Retirement Savings Plans and the following Canadian/Provincial Plans—Income Replacement, Office Overhead, Term Life, Liability, and Extended Health Care.

The Liability and Income Replacement Plans are the most popular of those offered, followed by the Office Overhead Plan. A smaller number of dentists is enrolled in the Term Life Plan and the two Retirement Savings Plans.

The secret of success in any group program is participation, and as more dentists participate in the vari-

ous plans, it will be possible to achieve more economical rates and a wider variety of options.

One of the attractions of the plans is the option available to graduating dental students to acquire a minimum amount of life, liability, disability and office overhead insurance with no medical test.

Both the Canadian and the Ontario Dental Associations are represented on the Board of Directors of CDSPI, since CDSPI performs a similar function for ODA insurance, investment and welfare plans. The president is Doctor W. S. MacKenzie of Toronto. Administrator of CDSPI is Mr. W. E. Jackson, who is also business manager of the ODA.

In addition to administering the Canadian/Provincial insurance programs, CDSPI provides an accounting service to the ODA, the Royal College of Dental Surgeons of Ontario and the Toronto Academy of Dentistry. It also administers dental welfare plans for the Province of Ontario and the cities of Toronto, Ottawa and Kingston.

In the year ending July 31, 1971, CDSPI handled a revenue flow of \$6,647,243, of which more than \$4 million came from premiums. Plans are now being completed to fully computerize CDSPI accounting systems.

CDSPI was established in 1958 "to operate a service agency capable of extending a complete consulting and accounting service to the dental profession and to its legally incorporated bodies . . . on a non-profit basis."

With such a facility functioning as an integral part of dentistry, the individual dentist has access to professional management for all his insurance and retirement investment needs.

**NEXT:** The role of organized dentistry in safeguarding your security.



Commission prepare a plan for publicly-paid emergency dental treatment, and review inconsistencies in payments for in-hospital dental services. Currently, payment is only made if the dental treatment of an insured service is rendered in a hospital. The report suggests that it is the service that should be insured, not the location of such service.

## National Convention

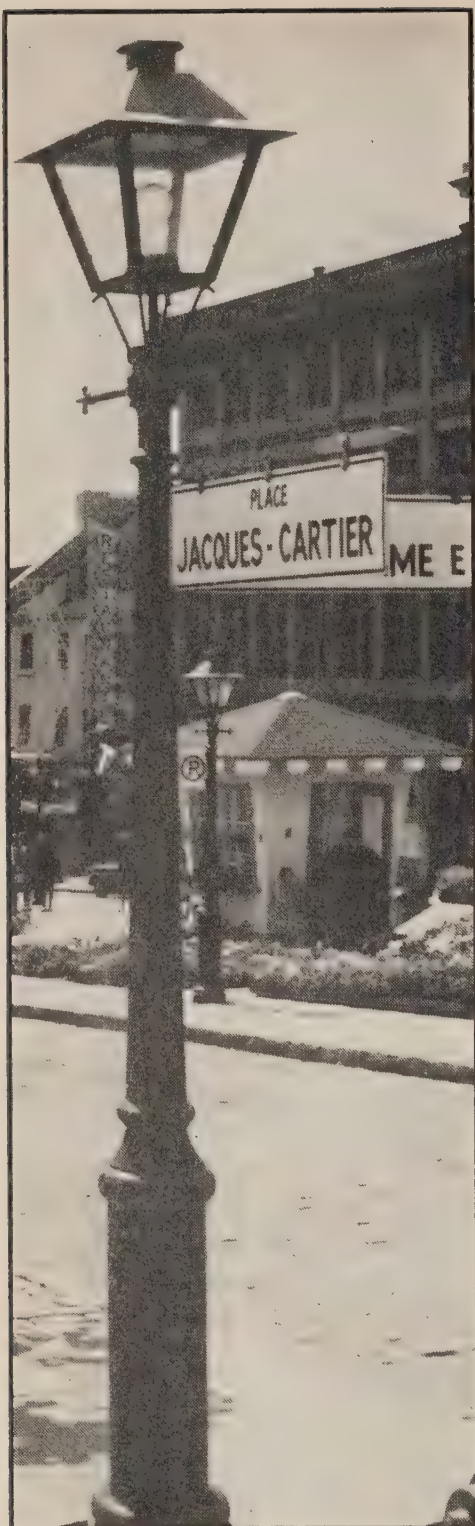
### Prosthodontic academy speakers listed

"Keys to Greater Harmony between Prostheses and Supporting Structures" is the theme for this year's meeting of the Canadian Academy of Prosthodontics at the Queen Elizabeth Hotel,

(Continued on page 170)

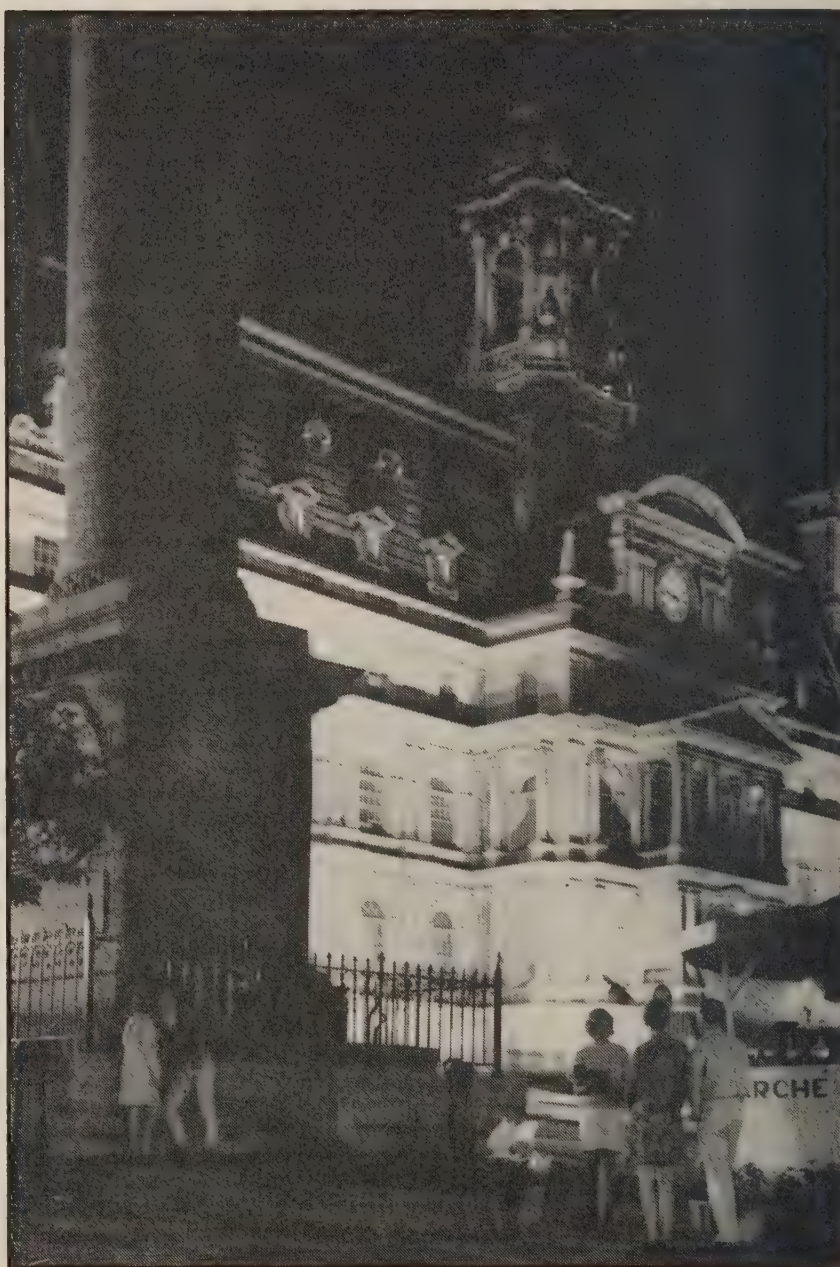


# OLD MONTREAL



Place Jacques-Cartier occupies the former site of the Chateau and gardens of the Marquis Rigaud de Vaudreuil, one of the last French governors. His century-old estate was destroyed by fire in 1803, and, for generations thereafter, the razed property was used as a farmers' market. Today, with its restored cobblestone streets and summer-long flower market, the square is once again peopled by colourful vendors.

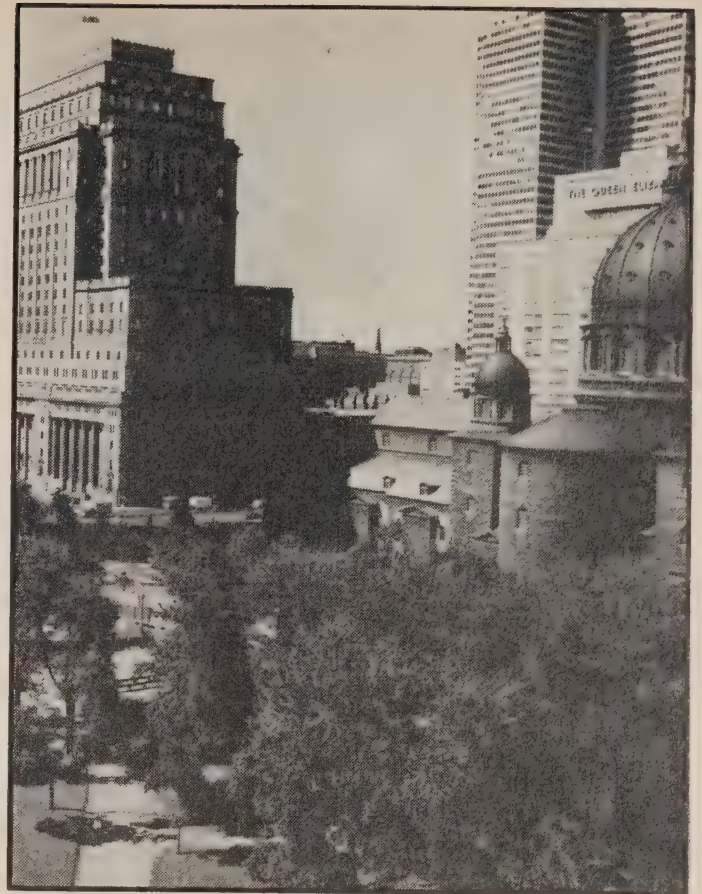
A view of the city hall by night from Place Jacques-Cartier in "Old Montreal." It's only a short taxi ride away from the major downtown hotels where the Canadian Dental Association will hold its 1972 national convention with Les Journées Dentaires du Québec, June 4-7. Across from the city hall is the Chateau de Ramzay, one of the rare houses characteristic of the French regime still intact. For many years it has been a museum of Canadian artifacts and also holds a notable coin collection.







Montreal's core skyline seen from the winding footpath which gently rises 743 feet to the top of the 494-acre Mount Royal Park. The park, established in the 1880's, was designed by Frederick van Olmstead, the leading North American landscape architect of the period. A great believer in making parks as natural as possible, he was in a strong position to insist the point having been responsible for Central and Morningside parks in New York, the Capitol Building grounds in Washington and the Back Bay Fens of Boston. In an era that believed no lily should be left ungilded, he was considered quite a maverick. The result of his work is one of the most beautiful city parks in the world.



Established in 1873 on the site of an old Catholic cemetery, Dominion Square now sits amid towering skyscrapers in Montreal's downtown core. A rotating art exhibit is featured in the square all summer.



The original Bonsecours Market on St. Paul Street at Bonsecours represents one of the major accomplishments in the restoration of Old Montreal. The surrounding area abounds in antique shops, excellent restaurants and charming boutiques, all in keeping with the flavour of the Vieux Quartier.



Montreal, June 3-4.

Essayists participating in the scientific program are:

— A. S. Weisgold, Philadelphia, "Centric position: its physiologic basis and clinical significance;"

— G. E. Smutko, Niagara Falls, NY, "Mode of treatment of several prosthetic mandibular problems;" and

— J. S. Brudvik, Washington, "Wrought wire in removable prosthodontics."

Three Canadian essayists will report results from their own research projects. They include:

— G. A. Zarb, Toronto, "Dental implants;"

— Paul Jean, Quebec City, "The porcelain veneer gold crown;" and

— Françoise Michaud, Montreal, "Irreversible hydrocolloids."

Also participating on the program are:

— R. L. Lee, Cotton, California, "The role of incisal guidance and vertical dimension in mandibular movements;"

— W. R. Scott, Vancouver, "An external precision attachment and pintle joint;" and

— L. B. Hilborn, Louisville, Kentucky, "The extended use of auxiliaries in prosthodontics."

Registration for guests may be secured through W. G. Woods, CAP Secretary-Treasurer, Suite 1125, 123 Edward St, Toronto 101, Ont. For further information about the scientific program, contact Donald Kepron, Suite 20, 3550 Côte des Neiges Rd, Montreal 108, Que.

## Dental Education

### Northern Manitoba dentists endow scholarship fund

The Northern Manitoba Dental Society recently established a scholarship fund in memory of the late Doctor Jack King. The \$100 scholarship, which is of a perpetual nature, will be awarded annually to the student who attains the highest standing in oral surgery, radiology and oral diagnosis in the third year of the undergraduate dental course at the University of Manitoba.

### Manitoba faculty library receives original G. V. Black papers

The dental library at the University of Manitoba Faculty of Dentistry, Winnipeg, has become the proud owner of a set of original lecture notes by Doctor G. V. Black. Written in 1901, they cover the fields of operative dentistry, bacteriology and pathology of dental caries.

Originally owned by James Brass of Yorkton, Sask, the book was donated by his son, George A. Brass, head of the Department of Restorative Dentistry at the University of Manitoba.

As the only known printed copy of this book, it is an important addition to the library's collection.

## Educational opportunities

### Continuing education

The Faculty of Dentistry, University of Alberta, offers a ten day course in "Gold Foil Restorations," June 12-23. Areas of instruction will include efficiency in rubber dam procedures, cavity preparation, insertion by hand malleting and mechanical condensation, and the finishing of the foil restoration.

The clinicians are G. D. Stibbs, professor of operative dentistry and fixed partial dentures, University of Washington School of Dentistry, and G. H. Gibb, professor and head of the Department of Operative Dentistry, Faculty of Dentistry, University of Alberta.

The registration fee for the course is \$350. For further information, write to Division of Continuing Education, Faculty of Dentistry, University of Alberta, Edmonton, Alta.

## Fluoridation

### Alleged "environmental fluoride hazard" termed unsound

A study by two scientists from the National Research Council of Canada claiming possible hazards arising from fluoride overexposure has been condemned as unsound by a scientific expert at the Canadian Dental Association. He reviewed a study by J. R. Marier and Dyson Rose, Ottawa, released last February 15.

The Marier-Rose report suggested that man may be adding more fluorides than he should to that already naturally occurring in his environment and claimed that people are probably exposed to more environmental fluorides than has been suspected. It alleged that there is "a large scientific gap as to what effect that could have." The report also implicated fluoridated water and fluoride dentifrices as sources of fluoride and claimed that studies to monitor the total amount of fluoride taken in by humans are almost nonexistent.

The CDA scientist criticized exaggerations, misleading statements and important omissions in the Marier-Rose report which create an impression that dramatic increases in fluoride intake have occurred through "pollution" and that these alleged increases threaten the health of Canadians.

In his evaluation of the study, he pointed out that:

— Adults in naturally fluoridated communities in North America have ingested water containing 4 ppm fluoride and more all their lives without the slightest evidence of harm to their general health. The average daily fluoride intake in such communities is estimated to be at least 6 mg F/day, with considerably higher intakes by those individuals who consume unusually large amounts of water.

— Adults in optimally fluoridated communities (1 ppm F) have an estimated average fluoride intake from all sources of 2.7 mg F/day. Fluoride intake by individuals who consume very large quantities of water or water-based beverages could reach 5.4-6 mg F/day. These intakes are still well within safe limits.

— There is no evidence that the fluoride content of plant and animal products for general human consumption is increasing significantly through the use of superphosphate fertilizers or by virtue of the fluoride content of the ambient air.

— Non-dietary intake of fluoride by the general population is very low. Residents of large industrial cities in Canada would inhale less than 0.02 mg F/day. Fluoride intake resulting from the regular use of fluoride dentifrice would be less than 0.18 mg F/day.

— Direct clinical observation of children from optimally fluoridated communities (1 ppm F) shows that their total fluoride intake from all sources is within acceptable limits.

The CDA scientist therefore reaffirmed that fluoridation of water supplies is completely compatible with a safe level of total fluoride intake from all sources. This applies equally to individuals who for one reason or another prefer fluoride-rich foods or consume large quantities of water or water-based beverages.

## Economics

### "Stop profits from dentures," Ontario health minister warns

Ontario Health Minister Richard Potter recently said that dentists should make no profit from providing dentures to their patients. They can charge for their own services, such as fitting and adjusting the dentures, he said, but they should provide the appliance manufactured by the dental technicians to their patients at cost.

Teeth must be made available to the people "as economically as possible," he said. "We want to see that done and it is going to be done."



He spoke at a *Toronto Star* forum on dental care March 14. Attended by about 300 persons, it was the twentieth in a series of public forums that have

been held in the last three years to give the public an opportunity to discuss current issues with experts.

Other panelists at the forum included

C. F. Cappa, London, Ont, editor of the *Journal of the Ontario Dental Association*; Mrs. Norma Litwiller, Toronto, representing consumers; A. B. Hord and Roger Ellis of the University of Toronto Faculty of Dentistry; Mordon Lazarus, public relations director, Ontario Federation of Labour; and Wesley J. Dunn, dean, Faculty of Dentistry, University of Western Ontario, London.

## FOURTH SURVEY OF DENTAL PRACTICE

### Majority of dentists guided by provincial fee schedules

The various fee schedules prepared by the provincial associations are designed to provide guidelines for dentists in determining charges to be made for particular dental services. In the questionnaire sent out for the 1968 survey of dental practice, dentists were asked if they generally based their fees on these recommended rate schedules or, if not, whether they charged a fee for service or a fee per hour.

Of all the dentists taking part in the survey, 57 per cent reported generally using their provincial association's fee schedule. Of the remaining 43 per cent who did not base their fees on the schedules, 28 per cent charged fee for service, 9 per cent charged fee for time, and 6 per cent used a combination of both.

The percentage of dentists basing their fees on the provincial association's schedules was greatest in the Western provinces—76 per cent in Alberta, 70 per cent in British Columbia and 68 per cent in Manitoba and Saskatchewan. Between 56 and 67 per cent of the dentists in the Atlantic provinces used the schedules, but in Ontario and Quebec only 51 and 44 per cent respectively reported basing their fees on the provincial dental body's schedule.

### Survey shows modest trend away from solo practice

A modest trend away from solo practice and toward partnership and cost-sharing arrangements took place during the five years bridging the 1963 and 1968 surveys of dental practice carried out by the Canadian Dental Association.

The 1968 survey showed 82 per cent of the dentists in Canada to be in solo practice — that is, practising either alone or with associates on salary or commission and with no sharing of costs. While this figure represents a healthy majority, it does indicate a 4 per cent drop in the total of solo practitioners since 1963.

Another 14 per cent of dentists surveyed were without partners but shared costs of offices and employees. The remaining 4 per cent were in complete partnerships. These figures indicate an

increase of 3 per cent in the number of dentists sharing costs and a 1 per cent increase in the number involved in complete partnerships.

Of the total 4 per cent in partnerships, over half were with one other dentist, a quarter were in groups of three and only a fifth were in groups of four to seven dentists.

The overall trend away from solo practice and toward some type of sharing arrangement varied significantly from province to province. All the dentists from Newfoundland and Prince Edward Island who participated in the 1968 survey reported being in solo practice. Saskatchewan had the next highest percentage, 89 per cent, while only 67 per cent of the dentists reporting from Manitoba and 75 per cent from Alberta were in solo practice. The percentages in other provinces were close to the Canadian average of 82 per cent.

Manitoba showed 29 per cent of its dentists sharing costs, followed by 18 per cent in Nova Scotia and 17 per cent in Alberta. Other provinces were close to the national average of 14 per cent, with the exception of Saskatchewan, where only 7 per cent reported sharing costs.

Nova Scotia was the only one of the Atlantic provinces in which dentists reported partnership arrangements. In Alberta the proportion of dentists in partnership was highest, 9 per cent, compared with 3 or 4 per cent in other provinces. In addition, the size of the partnership itself tended to be larger in Alberta.

Other factors which seemed to affect the prevalence of solo practice included such diverse items as locale and age of dentists. Solo practice proved to be less popular in large cities (those with populations over 100,000) and with younger dentists. The highest percentage of dentists sharing costs was found in the under 35 age group, while solo practice was most popular among dentists in the 50 plus age bracket.

Type of practice was also an important factor in the trend regarding practice setup. A total of 83 per cent of general practitioners ran a solo practice, 14 per cent shared costs and 3.5 per cent were in partnerships.

Figures relating to specialists tell quite a different story; only 72 per cent are in solo practice, 19 per cent share costs, and 9 per cent form partnerships.

### Setback for mechanics in Nova Scotia

Dental mechanics in Nova Scotia suffered a setback when the interim report of the Nova Scotia Council of Health's task force on dental care recommended against legalizing their operations.

The report, issued March 24, took issue with a private member's bill which would have opened the field of prosthodontics to the mechanics. It contended that the bill went "considerably beyond what is necessary to provide for the public interest."

It suggested that dental hygienists, rather than mechanics, were the proper group to deal with the fitting of dentures because, according to the task force's chairman, F. B. Wickwire, "Dental hygienists have more adequate training in the biological aspects of the work. Mechanics do not."

### Career ladder system urged for auxiliaries

A system of dental auxiliary education that allows for flexibility in educational requirements, a career ladder system, and continuing education to prepare existing auxiliaries to perform expanded functions has been recommended to the Council on Dental Education of the American Dental Association.

The proposal comes from a committee representative of various groups associated with education and utilization of dental auxiliaries in the United States.

The group urged flexibility of educational requirements that would permit the teaching of expanded functions without increasing the length of the existing auxiliary curricula as well as permitting experimentation with shortening the curricula.

It also recommended that research be conducted to determine the dental laboratory technician's potential for performing additional functions in the dental office.

### Andras to ease competition bill

The Federal government plans "substantial changes" in its controversial



Competition Act before the measure is reintroduced in the House of Commons next fall, Consumer Affairs Minister Robert Andras said March 17.

The competition legislation unveiled last June proposed tough new rules dealing with a wide variety of business practices, including fee guides and fee schedules.

In an accompanying statement, David Henry, director of the combines investigation branch of the consumer affairs department, said that changes in the Competition Act as it affects professional and other associations may be considered after discussions with the provinces and these organizations.

### Dentists in other provinces may participate in Quebec Health Insurance Plan

Dentists who practise in regions adjacent to Quebec and who treat patients from that province may register as "voluntary participants" in the Quebec Health Insurance Plan if they so desire.

Voluntary participants may claim payment directly from the Quebec Health Insurance Board for insured services rendered to Quebec patients. They must, however, claim according to the schedule of benefits negotiated between the Ministry of Social Affairs and the corresponding Quebec federation of health professionals. They may not bill a Quebec patient in excess of the amount that would be allowable if the service were rendered in Quebec by a participating dentist.

To become a voluntary participant of the Quebec Health Insurance Plan, a dentist should write to the Professional Registration Service, Quebec Health Insurance Board, Quebec City, Quebec.

## New Technology

### New dental drill from Holland

A Dutch company has produced a new, compact dental drill that is coupled directly to a disposable motor without any intervening flexible drive cable. The assembly comprises the motor, with a directly connected handpiece or contra-angle and a rectangular case containing a transformer and control switches. After use the motor, together with the handpiece or contra-angle, can be hung up on the case.

The motor, which is said to have a life of some 700 hours, is reportedly cheaper to replace than to have armatures, bearings and other parts repaired. Equipped with self-lubricating bearings, it operates at 6,000 or 12,000 rpm for a power input of about 36 watts.

The motor weighs 0.28 lb and has dimensions of about 2 x 1.2 inches diameter. A lighter version weighing 0.11 lb, with dimensions of about 2 x 1 inches diameter, is also available. According to the manufacturer, the 0.11 lb version was specially designed for preparing inlays and bridges and adjusting dentures. The heavier type is recommended for working with gold and porcelain.

For further information, please write to the Royal Netherlands Embassy, 275 Slater St, Ottawa, Ont K1P 5H9.

## Public Health

### BC residents score high in dental care statistics

British Columbia children ranked in the first three positions in the majority of 12 dental indices used in a recent nation-wide dental health survey. The study, whose results were reported last year, recorded dental findings in Canadian children aged five to 16.

A Dutch company has manufactured this new dental drill with a disposable motor.

Another national survey, conducted by Statistics Canada, showed that in British Columbia more people on average visited a dentist than in the Prairie Provinces, Ontario, Quebec or the Atlantic Provinces.

## Canada and the Provinces

### Smoking and health seminar set for June 6

The Centennial Auditorium in Saskatoon will be the site for a National Seminar on Smoking and Health June 6, it has been announced.

The conference is sponsored by the Department of National Health and Welfare and the Canadian Public Health Association with participation by the Canadian Cancer Society, Canadian Heart Foundation, Canadian Tuberculosis and Respiratory Disease Association, the University of Saskatoon, Carleton University, and Waterloo University.

All interested persons are invited to attend. The registration fee is \$5. For further information, please contact B. J. Hosking, Department of Social and Preventive Medicine, University of Saskatchewan, Saskatoon, Sask.





## International Items

### British dental meeting set for July 10-14

Canadian dentists have been invited to the 92nd annual conference of the British Dental Association.

For the first four days the meeting will be held at the new University College campus at Swansea, Wales. On the fifth day, July 14, the conference moves on to the new dental school at Cardiff.

The registration fee for non-members is £12. For further information please write to S. R. Bragg, Assistant Secretary, British Dental Association, 64 Wimpole Street, London W1M 8AL.

### 1972 Winter Medical-Dental Assembly hears Montrealer

Delegates attending the 1972 International Winter Medical-Dental Assembly, February 23-29, heard how a Montreal dentist treats newborn infants with clefts of the lip and palate.

W. D. Oliver, who led off the scientific program, described the type of appliance he inserts for neonatal orthodontic treatment of lip and palate clefts, preferably within the first hour after birth.

This year's meetings were held in Vienna, February 23-25, and Innsbruck, Austria, February 26-29. The 1973 Assembly is scheduled for Prague, Czechoslovakia, and Budapest, Hungary, February 19-28. For further information, please contact A. T. Wachna, 504 Medical Arts Bldg, Windsor, Ont.

### South African Jubilee Congress set for August

Canadian dentists have been invited to attend the Golden Jubilee Scientific Congress of the Dental Association of South Africa in Johannesburg, August 28 to September 2. The meeting will be combined with the First International Congress of the South African Society of Orthodontists.

The scientific presentations by US, British and Swiss lecturers, based on the theme "Occlusion," will be tailored to the needs of the general practitioner. A major dental trade exhibition is also planned.

The registration fee is US\$135. For further information, please write to Helmut Heydt, Dental Association of South Africa, Private Bag 1, Houghton, Transvaal, South Africa.

## CDA Retirement Savings Plan

Unit values of the Canadian Dental Association Retirement Savings Plan stood as follows on March 31:

*Fixed Income Fund* \$12.793;

*Common Stock Fund* \$27.024.

Total assets (market value) of the plan were \$13,102,231.46.

The following portfolio sale occurred during the preceding month: 1,900 shares Molsons A.

For further information please write to CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto 180, Ont.

## Research

### New bond for plastic teeth

Development of a new method of bonding plastic teeth to prevent dislodgement from the plastic denture base has been announced by the American Dental Association's research unit in Washington.

The teeth are wetted with a solution of equal parts of methylene chloride and a cold-curing methyl methacrylate monomer for five minutes.

Investigators R. L. Bowen, N. W. Rupp and G. C. Paffenbarger claim the new system is much simpler than the current practice of cutting grooves into the teeth for mechanical retention and then wetting the teeth with a monomer.

Extreme stresses applied in laboratory tests made the teeth crack, but did not fracture the tooth-denture bond.

### "Have computer; will practise"

Scientists of the University of Florida will use a computer to study the effects of various components of dental practice on cost and effectiveness of care delivery. Their results may one day provide quick answers to complex questions on dental practice.

Time-lapse video tape recordings made in several private offices and clinics and data from other sources will enable researchers to determine such information as the time it takes the dentist and his auxiliaries to do each given task, the patient's waiting time, and the amount of time each member of the dental team is idle. In addition, facts are being collected on the types of dental personnel employed, the skills possessed by each, the assignments given

each employee and the estimated cost per treatment.

These data will be programmed into a computer able to vary factors such as staffing patterns, task assignments and task organization. The effects of various combinations on the cost and effectiveness of care will then be evaluated.

Results of the research may be used in future planning of dental health care delivery systems and in the education and training of dental health personnel. For example, a few dollars of computer time could give a dentist some idea, before he sets up his practice, of how his annual net income might be affected by different types of fee schedules, staffing patterns or services offered.

## Deaths

Bryce, William Drummond. 71. Ottawa. University of Toronto, 1927. 22-3-72. Survived by Fried-Aileen (wife); William Robert (son); Mrs. Bonnie Joy Trodden (daughter); Mrs. Elizabeth Bryce (mother); Mrs. Lillian Morris (sister); and Andy, Peter and Robbie Bryce (grandsons).

Craig, George Harold. 53. Belleville, Ont. University of Toronto, 1942. 4-3-72. Survived by Kathleen (wife); David (son); Mrs. Z. B. Roscoe, Mrs. Stephen Spencer and Miss Sally (daughters); and one grandchild.

Hicks, Alfred Andrew. 93. Chatham, Ont. Royal College of Dental Surgeons of Ontario, 1902. 17-12-71. Survived by Doctor J. Hilliard (son).

Jones, William McGregor. 77. Bathurst, NB. Baltimore College of Dental Surgery, University of Maryland, 1916. 17-2-72. Survived by Mrs. L. B. White, Mrs. J. C. Hayter and Mrs. Jean Thompson (sisters).

LeFebvre, Osias Adelard. 86. McGill University, 1915. 28-2-72. Survived by Mildred (wife); Doctor P. A. and Doctor R. A. (sons); Madeleine (daughter); and four grandchildren.

Mose, Vincent Edward. 67. Vancouver. North Pacific College, University of Oregon, 1926. 25-2-72. Survived by Elbert (brother).

Patterson, Richard Ashmer. 84. Kemptville, Ont. Royal College of Dental Surgeons of Ontario, 1911. 15-2-72. Survived by Benjamin (brother) and Mrs. Jessie Scott and Mrs. Josie Spratt (sisters).

Pelchat, Louis Philippe. 52. St-Georges de Beauce, Qué. Université de Montréal, 1944. 6-2-72.

Scholes, Jess Isidore. 66. Hamilton, Ont. University of Toronto, 1927. 17-3-72. Survived by Myron and David (sons).



Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 31 mars 1972:

*Fonds à revenu fixe* \$12.793;

*Fonds d'actions ordinaires* \$27.024.

L'avoir total (valeur marchande) du régime se montait à \$13,102,231.46.

Au cours du mois précédent, les transactions ont été les suivantes: vente 1,900 actions de Molsons A.

Pour de plus amples renseignements, veuillez écrire à: CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto 180, Ont.

## L'Association

### Selon l'ADC, "les barèmes d'honoraires rendent service au public autant qu'à la profession"

Selon l'Association Dentaire Canadienne les professions de la santé devraient pouvoir continuer à utiliser les échelles et les barèmes d'honoraires.

Cette opinion est émise dans un mémoire portant sur le projet de loi fédéral sur la compétition, et approuvé par le Conseil exécutif lors d'une réunion qui avait eu lieu du 6 au 8 mars. Ce mémoire a été soumis au Ministre fédéral de la Consommation, M. Robert Andras.

Faisant référence à un article de la loi qui semble interdire ces guides et ces barèmes d'honoraires, l'Association a fait remarquer que ces barèmes, qui sont en fait seulement suggérés à la profession, ne fixaient ni ne déterminaient le coût exact de tel ou tel autre service offert au consommateur. "Le dentiste qui utilise ce barème d'honoraires n'est lié à aucun contrat et il n'encourt aucune poursuite légale du fait qu'il suive ou rejette cette échelle".

"Ces barèmes d'honoraires fournissent au dentiste une base solide, résultat d'études et d'analyses fiables, sur laquelle il sait qu'il peut fixer ses honoraires. De plus ces barèmes constituent aux yeux du public une mesure de sécurité et de justice qu'il ne pourrait avoir autrement", d'ajouter le mémoire.

Dans d'autres domaines le Conseil exécutif:

— A approuvé les plans préliminaires à la construction du secrétariat de l'Association à Ottawa, et a donné son accord à la préparation de plans plus détaillés qui seront présentés au Conseil des Gouverneurs qui se réunira en juin.

— A approuvé et a remis au Conseil des services dentaires un rapport pré-

liminaire sur le rôle de la dentisterie dans les programmes nationaux de santé. Le rapport qui insiste sur la nécessité d'incorporer les soins dentaires à tout programme national de santé, indique les principes directeurs, les priorités et les grandes lignes que prendrait cette participation dentaire dans ces programmes.

— A approuvé un mémoire qui doit être soumis à l'Assemblée nationale du Québec. Ce mémoire traite du Bill 266, mieux connu sous le nom "Loi des denturologistes".

## Chronique internationale

### Hygiénistes canadiennes à un symposium international

Sharon French, d'Ottawa, présidente sortante de l'Association canadienne des hygiénistes dentaires et Rosalyn Froehlich, de Charlottetown, figurent parmi les principaux orateurs qui prendront part au troisième symposium international sur l'Hygiène dentaire qui doit se dérouler à Londres du 21 au 23 avril. Le symposium est commandité par l'Association américaine des hygiénistes dentaires.

Mme French parlera de "L'hygiéniste dentaire et le service canadien de la santé", quant à Mme Froehlich elle abordera "Le rôle de l'hygiéniste dentaire en dentisterie opératoire". Ce symposium est ouvert à tous les membres de la profession dentaire ou professions connexes. Les frais d'inscription sont de \$25 pour ce congrès de trois jours. On peut obtenir des renseignements supplémentaires en écrivant à l'Association américaine des hygiénistes dentaires, 211 East Chicago Avenue, Chicago, Illinois 60611, USA.

## Les organismes dentaires

### L'association de la Nouvelle-Ecosse réclame un régime pour enfants

L'Association dentaire de la Nouvelle-Ecosse, dans un rapport intérimaire envoyé à un groupe d'étude qui se penche sur les problèmes dentaires à la demande du gouvernement, a demandé un programme complet de soins dentaires pour les enfants dont l'âge va jusqu'à trois ans inclusivement. L'Association envisage l'expansion graduelle de ce plan jusqu'au point où il couvrira tous les jeunes jusqu'à l'âge de 16 ans.

Cette recommandation va de pair avec un programme de prévention et d'éducation ainsi que l'utilisation accrue du personnel hygiéniste. Le plan comprend tous les services de prévention, d'éducation et de diagnostic pris en charge immédiatement par le gouvernement, ainsi que l'établissement d'un plan auquel il serait possible de participer de façon volontaire, avec cotisations versées à l'avance et qui couvrirait tous les traitements dentaires.

L'Association de la Nouvelle-Ecosse a aussi recommandé la mise sur pied de cours intensifs visant à la formation d'hygiénistes dentaires qui se spécialiseraient dans des secteurs particuliers des soins dentaires. On pourrait mentionner la dentisterie opératoire, l'orthodontie, les prothèses dentaires et la periodontie.

Décrivant l'hygiéniste comme "le bras droit" du dentiste, l'ADNE voit dans son rôle accru un moyen viable d'augmenter la dispensation des soins dentaires au public.

Le rapport demande aussi la fluoration des réserves d'eau potable de 30 localités de la Nouvelle-Ecosse. En ce moment 18 localités de la province bénéficient de systèmes de fluoration de l'eau.



# VOTRE SÉCURITÉ

*Voici le premier article d'une série portant sur les programmes d'assurance et d'investissement offerts par l'entremise de la profession dentaire.*

Les dentistes canadiens peuvent maintenant participer à un plan unique combinant à la fois les programmes d'assurance et d'investissement, ce plan étant conçu et géré par la profession dentaire.

Le but de ce programme est de permettre au dentiste de profiter des avantages offerts d'ordinaire aux groupes. Comme les détenteurs de ce plan relèvent de groupes dentaires officiellement reconnus, chaque clause de protection est offerte aux adhérents avec le maximum de protection pour une prime raisonnable.

Les plans canadiens et provinciaux qui assuraient la profession dentaire furent fusionnés le 1er octobre 1969, et la responsabilité des différentes activités dans ce domaine sont maintenant assurées par le Conseil des assurances et des investissements de l'Association Dentaire Canadienne.

Le fonctionnement des plans, avec la collaboration des compagnies qui les offrent est entre les mains du Canadian Dental Service Plans, Inc (CDSPI) qui est entièrement sous le contrôle de la profession dentaire.

Cette agence s'occupe de recueillir les fonds provenant des primes pour les régimes d'épargne-retraite de l'ADC et les plans canadiens provinciaux suivants: assurance-revenu, assurance générale pour le cabinet, assurance-responsabilité, assurance-vie et assurance-santé.

Les plans d'assurance-responsabilité et assurance-revenu sont de loin les plus populaires, suivis de près par les plans d'assurance générale pour le cabinet dentaire. Seul un petit nombre de dentistes ont accepté l'assurance-vie ainsi que deux plans de régimes de retraite qui leur étaient proposés.

Pour qu'il soit efficace un régime d'assurance-groupe nécessite une forte participation, et puisque de

nombreux dentistes participent à ces plans divers, il sera possible d'offrir des options plus variées et à un coût plus bas.

L'une des options qui attire le plus les étudiants dentaires diplômés est celle qui leur offre la possibilité de bénéficier d'une assurance-vie, responsabilité, invalidité et assurance générale pour le cabinet, et ce sans examen médical préalable.

L'ADC et l'Association dentaire de l'Ontario sont toutes deux représentées au sein du Bureau de direction du CDSPI, puisque le CDSPI remplit la même fonction quant aux plans d'assurance, d'investissement et de bien-être à l'ADO. Le président est le Dr W. S. MacKenzie de Toronto et l'administrateur est M. W. E. Jackson.

En plus d'administrer les programmes d'assurance fédéral-provincial, le CDSPI offre aussi un service de comptabilité aux organismes suivants: l'Association dentaire de l'Ontario, le Collège Royal des Chirugiens-Dentistes de l'Ontario et le "Toronto Academy of Dentistry". Il administre aussi des régimes de soins dentaires pour les assistés sociaux pour la province de l'Ontario et pour les villes de Toronto, Ottawa et Kingston.

Pour l'exercice financier prenant fin le 31 juillet 1971, le CDSPI avait un actif de \$6,647,243 dont plus de \$4 millions provenaient de primes.

On modernise en ce moment le système de comptabilité pour qu'il puisse être traité par ordinateur.

Le CDSPI fut fondé en 1958 "pour mettre sur pied et faire fonctionner une agence capable de fournir à la profession dentaire un service complet de consultation et de comptabilité . . . et ce sur une base non lucrative".

En faisant appel à cet organisme qui fait partie intégrante de la dentisterie, le dentiste a accès à une gestion professionnelle en ce qui concerne ses besoins d'assurance et d'investissements.

Prochain numéro: Le rôle de la profession dentaire et la protection de vos intérêts.

Deux nouveaux centres de formation pour assistantes dentaires certifiées furent recommandés pour Sydney et Yarmouth. Le rapport réclame aussi des installations supplémentaires à l'Institut technique de la Nouvelle-Ecosse à Halifax et insiste sur le besoin d'établir des conditions propres à faciliter la formation des techniciens dentaires à l'intérieur d'instituts professionnels ou d'instituts techniques.

Le rapport insiste aussi sur le manque de dentistes et leur concentration dans les plus grandes villes, et demande l'agrandissement immédiat de la faculté dentaire à l'Université Dalhousie,

qui à présent refuse quatre fois le nombre de postulants qualifiés. Le rapport recommande également la création d'octrois d'installation pour attirer les dentistes dans les régions de la province qui manquent de services dentaires.

L'association a demandé à la Régie de l'assurance-maladie de la Nouvelle-Ecosse de préparer un régime pour les soins dentaires d'urgence qui serait payé par le trésor public, et de réviser l'illogisme de certains paiements faits pour les services dentaires rendus à l'hôpital. A présent, les soins dentaires ne sont rémunérés que s'ils sont accom-

plis dans un hôpital. Le rapport suggère qu'il faut que ce soit le service qui soit assuré, et non le lieu où tel service est rendu.

## L'économie

### Les dentistes américains doivent afficher leurs honoraires

Selon la seconde phase du programme de stabilisation économique du prési-



## LA 4e ENQUETE NATIONALE REVELE L'ORIENTATION DE L'EXERCICE DENTAIRE AU CANADA

En 1969 une enquête portant sur les conditions de l'exercice dentaire durant l'année 1968 fut entreprise par l'Association Dentaire Canadienne. C'était la quatrième enquête du genre, les trois autres ayant été menées à intervalle régulier de cinq ans en 1953, 1958 et 1963.

Ces enquêtes régulières fournissent des renseignements de première importance quant à la main d'oeuvre dentaire, à l'aspect économique de la profession et aux conditions liées à cette pratique. De plus ces études permettent à l'Association d'établir non seulement des données précises qui seront conservées ainsi que des statistiques concernant la profession, elles se révèlent aussi un excellent moyen d'étudier tout changement dans les différents types de pratique.

Les données statistiques recueillies au cours de ces enquêtes constituent une source importante de renseignements qui peuvent répondre à toutes les questions que se posent les dentistes, les étudiants, les associations, les gouvernements ainsi que le public en général. L'enquête sert aussi à évaluer les services dentaires offerts dans le présent et dans l'avenir; elle contribue ainsi à planifier judicieusement l'accessibilité aux soins dentaires dans l'avenir.

Le questionnaire envoyé pour l'enquête de 1968 était plus détaillé et plus complet que celui utilisé lors des enquêtes précédentes. Cependant certaines questions restaient similaires de façon à pouvoir établir les orientations nouvelles qui se dessinaient dans la pratique de la profession et à déceler tout changement significatif dans les types de pratique traditionnels. De nouvelles questions furent cependant incorporées au questionnaire, questions qui devaient toucher des domaines non explorés encore lors des enquêtes précédentes.

Un rapport complet de toutes les données fournies par cette 4e enquête nationale sera publié sous peu en français et en anglais et sera disponible de l'ADC sur simple demande.

Les principaux chapitres couvriront des sujets aussi divers que: revenus provenant de la pratique privée et des emplois salariés; revenus bruts, dépenses et revenus nets provenant de la pratique privée par rapport au nombre de fauteuils dentaires, au personnel

auxiliaire, au nombre d'heures consacrées à la pratique et au degré d'affaiblissement du dentiste; les honoraires et comment ils sont fixés, sans compter une foule d'autres sujets liés au fonctionnement quotidien d'un cabinet dentaire.

Puisque les données de l'enquête sont basées sur l'analyse des questionnaires remplis et renvoyés par 33 p.c. de l'ensemble des dentistes à travers le Canada, les praticiens trouveront sûrement utile de comparer leur propre pratique ou leur emploi salarié avec la moyenne pour les dentistes travaillant dans la même région, ayant à peu près le même âge et ayant la même spécialité.

### Le dentiste fixe en moyenne 3,900 rendez-vous par année

En moyenne le dentiste canadien évalue à 1,900 le nombre de patients que lui et ses employés ont eu à soigner en 1968; parmi ce nombre 1,100 soit 58 p.c. sont des adultes et 800 soit 42 p.c. sont des enfants dont l'âge va jusqu'à 18 ans inclusivement.

Autre particularité concernant la charge annuelle du dentiste, il appert d'après l'enquête de 1968 sur la profession dentaire menée par l'ADC que 1,200 patients (64 p.c. du nombre total de patients reçus) ont des rendez-vous de rappel réguliers; le nombre total de ces patients réguliers comprend 560 enfants et 660 adultes.

La moitié de l'ensemble des dentistes avaient cependant reçu moins de 1,500 patients pendant l'année et parmi ce nombre moins de 900 clients se faisaient suivre régulièrement par leur dentiste.

Le nombre moyen de rendez-vous par dentiste fut de 3,900 soit à peu près 2 rendez-vous pour chaque patient reçu.

Ce sont les dentistes de la Saskatchewan qui reçurent le nombre le plus élevé de patients avec un total moyen de 3,000. Les dentistes du Québec pour leur part se situèrent à l'autre extrémité de l'échelle ne recevant en moyenne que 1,400 patients par année.

Dans toutes les provinces sauf à Terre-Neuve et à l'Île-du-Prince-Édouard la majorité des patients reçus se faisaient suivre régulièrement par leur dentiste par le système de rappel.

cipaux traitements effectués est disponible. Cette affiche doit de plus indiquer où se trouve cette liste d'honoraires.

De plus les dentistes et autres professionnels s'occupant de la santé doivent avoir sous la main, en vue d'une "inspection publique" une liste d'honoraires qu'ils ont perçus pour les principaux services rendus pendant la période du 16 juillet au 14 août 1971, ainsi que les augmentations de ces honoraires depuis le 14 août. Une copie de cette liste doit être envoyée au représentant du Service de l'impôt ou de la Commission américaine des prix sur simple demande de leur part.

## L'enseignement dentaire

### Octroi fédéral à une conférence sur l'enseignement dentaire

M. John Munro, ministre fédéral de la Santé et du Bien-être, a annoncé qu'un octroi de \$16,089 serait accordé à l'Association Dentaire Canadienne pour la tenue d'une conférence nationale sur l'enseignement dentaire.

Cette conférence qui aura lieu en septembre est une initiative du Conseil de l'enseignement de l'ADC. On y abordera différentes méthodes susceptibles d'encourager des programmes d'enseignement permanent accessibles aux omnipraticiens, aux spécialistes et aux autres groupes s'occupant de la médecine dentaire. L'agenda de la conférence prévoit aussi les thèmes suivants: le développement futur de programmes d'enseignement et les ressources en main-d'oeuvre de la profession dentaire.

On y discutera aussi des responsabilités des associations dentaires, des organismes de licence et des gouvernements dans l'élaboration de programmes d'enseignement dentaire.

Ce projet a été endossé par le Conseil des Gouverneurs de l'ADC lors du congrès national en 1971.

## L'hygiène publique

### Statistiques intéressantes en ce qui concerne les soins dentaires en Colombie-Britannique

Les enfants de la Colombie-Britannique ont obtenu les trois premiers rangs dans une épreuve de 12 indices dentaires utilisés dans une enquête récente sur la santé dentaire à travers le Canada. L'étude dont les résultats furent dévoilés l'an dernier, enregistrait l'état des enfants canadiens âgés de cinq à 16 ans.

dent Nixon, les dentistes américains doivent placer à l'intérieur du cabinet

dentaire une affiche indiquant qu'une liste d'honoraires établis pour les prin-



Une autre enquête nationale menée par Statistiques Canada, démontra qu'en Colombie-Britannique une moyenne plus considérable de gens avaient vu leur dentiste que dans les provinces des Prairies, en Ontario, au Québec ou dans les Provinces atlantiques.

## La fluoration

### Raisonnement à faux: le danger à l'environnement dû au fluor

Un expert scientifique de l'Association Dentaire Canadienne a condamné une étude du Conseil national de la recherche du Canada qui prétend qu'il existe un danger possible dû à un abus de fluor. Il a fait la critique d'une étude faite par J. R. Marier et Dyson Rose, d'Ottawa, qui a été publiée le 15 février.

Le rapport Marier-Rose suggère que l'homme ajoute plus de fluor qu'il ne le faudrait aux substances fluorées qui se trouvent déjà à l'état naturel dans l'environnement, et il prétend que la population est probablement exposée à plus de fluor dans l'environnement que l'on avait d'abord pensé. Il prétend qu'il existe une lacune dans les connaissances scientifiques en ce qui concerne l'effet qu'une telle chose pourrait avoir. Le rapport a également mis en cause l'eau fluorée et les dentifrices au fluor comme sources de fluor et prétend qu'il n'existe presque pas d'études ayant enregistré la quantité totale de fluorures qu'assimile la population.

Le scientifique de l'ADC a critiqué les exagérations, les déclarations fallacieuses et les omissions importantes du rapport Marier-Rose qui ont créé l'impression qu'une augmentation dramatique de fluor est due à la "pollution" et que cette soi-disant augmentation menace la santé des Canadiens.

Dans son évaluation de l'étude, il a signalé que:

— Des adultes habitant dans des régions de l'Amérique du Nord où l'eau est naturellement fluorée ont ingéré de l'eau contenant 4 ppm de fluorure et plus tout le long de leur vie sans la moindre évidence de tort à leur santé. On estime que l'absorption quotidienne moyenne de fluorure dans ces régions se situe au niveau de 6 mg F par jour, et que ce montant peut être beaucoup plus élevé chez les individus qui consomment de très grosses quantités d'eau.

— Des adultes vivant dans des régions où l'eau est fluorée de façon optimale (1 ppm F) ont une consommation moyenne de fluor en provenance de toutes les sources s'élevant à 2.7

mg F par jour. Les individus qui consommeraient de très grandes quantités d'eau ou de breuvages à base d'eau pourraient atteindre un niveau allant de 5.4 à 6 mg F par jour. Ces consommations restent encore à l'intérieur des limites qui sont considérées comme étant sans danger.

— Il n'existe aucune évidence que le contenu de fluor de produits végétaux ou animaux qui sont consommés par le public augmente d'une manière significative grâce à l'emploi de fertilisateurs au superphosphate ou en raison du contenu de fluor de l'air ambiant.

— La consommation de fluor de sources non-alimentaires est très basse. Les résidents des grandes villes industrielles du Canada respirent moins de 0.02 mg F par jour. La consommation due à l'emploi régulier d'un dentifrice au fluor démontre moins de 0.18 mg F par jour.

— L'observation directe d'enfants vivant dans les villes où l'eau est fluorée d'une façon optimale (1 ppm F) démontre que leur consommation totale de fluorure de toutes les sources se situe dans les limites acceptables.

Le scientifique de l'ADC a donc conclu que la fluoration de l'eau potable est complètement compatible avec le niveau sûr représentant la consommation totale de fluor provenant de toutes les sources. Ceci s'applique également aux individus qui, pour une raison ou une autre, préfèrent des aliments riches en fluor ou qui consomment de grandes quantités d'eau ou de breuvages à base d'eau.

## La recherche

### Fil métallique révolutionnaire en orthodontie

On utilise à l'Université de l'Iowa un nouveau fil métallique aux propriétés uniques pour les traitements orthodontiques.

G. F. Andreasen, chef du département d'orthodontie à cette université dit que ce fil connu sous le nom de nitinol est constitué d'un alliage de nickel et de titane ainsi que d'un peu de cobalt qui rend l'alliage plus dur et plus raide.

Le fil orthodontique conventionnel en acier inoxydable se déforme lorsqu'il est tordu ou courbé et doit donc être changé fréquemment. Le fil de nitinol au contraire retrouve environ 95 p.c. de sa forme initiale et résiste beaucoup mieux à la corrosion que l'acier inoxydable.

Une autre variété de ce fil de nitinol mais sans cobalt cette fois semble aussi promise à un bel avenir. Cet alliage

possède la propriété unique d'une "mémoire élastique". Lorsque le fil est étiré, courbé ou déformé de toute autre façon à basse température, il retrouve sa forme et sa longueur originales lorsqu'on le chauffe.

La température à laquelle le fil "se rappelle" ses caractéristiques initiales, que l'on appelle "son champ de température de transition" (CTT) est déterminé par les proportions exactes de nickel et de titane qui constituent l'alliage.

Cette propriété dépend de deux liaisons moléculaires différentes qui sont présentes dans le métal. Il existe une liaison faible en dessous du CTT qui rend le fil facile à déformer. Au dessus du CTT la liaison moléculaire devient plus forte et le fil est difficile à déformer.

Le Dr Andreasen espère utiliser le nitinol comme fil auto-retractable pour redresser les dents. La technique serait la suivante:

L'orthodontiste prend une certaine longueur de fil métallique froid, mettons 10 cm, et l'étire jusqu'à ce qu'il mesure 11 cm. Le fil est ensuite posé dans la bouche. Comme la température du nitinol est élevée par la chaleur du corps à un niveau dépassant le CTT, la mémoire élastique fonctionne et le fil se contracte de 11 à 10 cm, exerçant ainsi certaines forces qui redresseront les dents ou réduiront les espaces qui les séparent.

Les dentistes et les ingénieurs effectuent en ce moment des tests pour déterminer jusqu'à quel point la force varie durant l'application. Ils veulent trouver un alliage particulier qui possède le CTT entre la température de la pièce et celle de la bouche, et vérifier jusqu'à quel point le fil est sensible aux changements dans la bouche lorsqu'on boit des liquides chauds et froids. Ils veulent aussi vérifier si, dans le cas de l'utilisation du fil sans cobalt, l'orthodontiste aura le temps de fixer le fil dans la bouche avant qu'il ne commence à se contracter.

Des études préalables ont permis d'indiquer que le processus prend environ cinq minutes. Si le fil de nitinol se révèle aussi révolutionnaire qu'on le prétend, il pourra peut-être éliminer une bonne partie des élastiques, des ressorts et des élastiques plastiques dont se servent les orthodontistes à présent.

Le Dr Andreasen indique que la mémoire élastique du nitinol qui permet au fil déformé de rétrécir lorsque chauffé semble particulièrement étrange puisque d'ordinaire un métal se dilate sous l'action de la chaleur. Une utilisation pratique de cette mémoire élastique nous est donnée dans l'installation des rayons de bicyclette par exemple.



### Development of mandibular spacing-crowding from nine to 16 years of age

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*In the mandibular dentitions of 52 essentially Class I subjects studied at nine and 16, it was found that the greater the crowding at age nine the less was the arch perimeter decrease by 16. Spacing-crowding at nine showed a high correlation with spacing-crowding at 16. Estimates of future spacing-crowding based upon estimates of unerupted tooth size may be improved by using an average factor for arch perimeter reduction.*

*On découvrit après examen de 52 dentitions mandibulaires de Classe I chez des sujets âgés de neuf à 16 ans que plus il y avait encombrement des dents à neuf ans, moins le périmètre de l'arc diminuait à 16 ans. Les espaces et les encombrements à neuf ans ne changent pas beaucoup à 16 ans. Les prédictions des espaces et des encombrements futurs basées sur les dimensions des dents enclavées pourront être améliorées en utilisant un facteur moyen pour la réduction du périmètre de l'arc.*

The purpose of this study was to explore the development of essentially Class I malocclusions of a spacing or crowding nature in the mandibular dentitions of untreated subjects for whom suitable records were available at both nine and 16 years of age.

Hence, mandibular spacing or crowding as it existed in the mixed dentition at age nine was compared with subsequent spacing or crowding at age 16; arch perimeter changes over the seven year age span were studied and a frequently used mixed dentition analysis was studied over the same period. Furthermore, the sample was subdivided to produce various groupings relatively homogeneous with respect to spacing or crowding, in an effort to determine whether the amount of spacing or crowding had an effect on the factors being studied.

Although the development of spacing-crowding from five to 18 years of age has been reported by Moorrees<sup>1</sup> for approximately 30 subjects having normal dentitions, he did not report on malocclusion. He concluded that the average changes he described are "useful abstractions at best," and that some children developed normal occlusion of the permanent dentition "in spite of a marked lack of space or a large surplus of space during the transitional period." Arch perimeter is known to decrease on the average from nine to 12 years of age<sup>1-4</sup> but, as Bowden<sup>5</sup> and Fisk<sup>6</sup> have pointed out, some arches diminish more than others.

Prediction during the mixed dentition of spacing-crowding in the permanent dentition has been reported frequently<sup>2,7-11</sup> and seems to have two intrinsic components: (1) estimation of unerupted tooth size which is relatively accurate on the basis of correlation techniques<sup>7-9,12</sup> and even more accurate when these are modified by radiographic measures,<sup>13</sup> and (2) estimation of arch perimeter change in which numerous factors are involved. The latter component appears to contribute considerable uncertainty to a prediction of spacing-crowding. Clauss<sup>14</sup> in 1955, using six different predictive methods available at that time, observed



that in only half of his sample of 40 subjects was the prediction of future spacing-crowding within 3 mm of attained spacing-crowding.

Although numerous specific factors are involved, spacing-crowding results principally from the difference between (1) the available arch perimeter and (2) the tooth material which occupies (or will occupy) the available arch perimeter. Therefore, this study is concerned with the changing relationship of these two factors as evidenced by spacing-crowding in the mandibular mixed dentition at nine years of age and in the permanent dentition at 16 years of age in the same subjects. The data also permitted the testing of estimates of future spacing-crowding.

## Sample

Mandibular casts of 52 untreated subjects were selected under three categories from the total files of the Burlington (Ontario) Orthodontic Research Centre to represent spacing (0 to 4.5 mm), moderate crowding (0 to 4 mm) and severe crowding (4 mm or more) in the mandibular dentition at age nine. The samples were thus intentionally biased toward three categories of spacing or crowding malocclusion. Forty-four of the cases had Class I molars, five were unilateral Class II and three were bilateral Class II at age nine. The sample was therefore essentially Class I. Three of the Class I cases became Class II by age 16 and one unilateral Class II case became Class I. The requirement that no orthodontic treatment or extraction of mandibular permanent teeth occur during the period of study resulted in a rather small sample of 12 cases having a total of 4 mm or more crowding (severe crowding) in the lower arch at age nine.

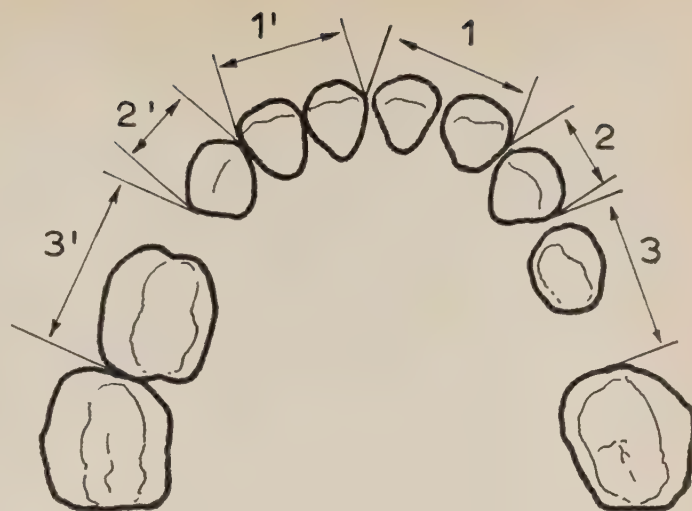
**Distribution of the sample used in this study according to sex and spacing or crowding** Table 1

| Sample            | Males | Females | Total |
|-------------------|-------|---------|-------|
| Spacing           | 16    | 6       | 22    |
| Moderate crowding | 10    | 8       | 18    |
| Severe crowding   | 9     | 3       | 12    |
| Total             | 35    | 17      | 52    |

Table 1 summarizes the distribution of the sample in the three categories used. Since this is a study of the development of malocclusion rather than of incidence, the fact that there were twice as many males as females in the sample demonstrating the malocclusions selected should not be interpreted as evidence for such a trend in the population.

## Methods

Tooth size measurements of the greatest mesiodistal diameter of the mandibular teeth anterior to the per-



**Fig 1 Method of obtaining arch perimeter measures in six segments.**

manent molars were made to the nearest tenth of a millimetre, as outlined elsewhere,<sup>15</sup> by a technician and repeated by one of the authors to eliminate gross errors. Hence, the average group errors of measurement were assumed to be less than 0.1 mm for these measures. At age nine, the size of missing primary cuspids or molars was obtained from earlier records if available, or estimated by using the size of the antimere if present, or obtained by interpolation from a table of average values.<sup>11</sup> Arch perimeter was measured as shown in Figure 1 at both ages. The cuspid measures were assigned to the anterior segment. Molar relationship was measured in millimetres from the tip of the mesiobuccal cusp of the maxillary first permanent molars to the buccal groove of the mandibular molars parallel to the occlusal plane. Here, the error of measurement was 0.5 mm.

## Findings and discussion

Sex differences in overall tooth size were tested and found to be not statistically different for the total sample. This was due to over-representation of males with small teeth in the sample of spaced dentitions in which tooth size is less than average (overall tooth size had a correlation of 0.48 with spacing-crowding in this sample).

Sex differences in spacing-crowding were also tested for the entire arch (molar to molar) and for the anterior segment (including cuspids) and posterior segments separately at both ages. The results were not statistically different in any of those comparisons. Hence, no sex distinction was made in subsequent analysis of spacing-crowding.

An initial plot of the data (Fig 2), using permanent incisor and primary cuspid and molar tooth sizes at age nine to compute spacing-crowding as explained above, revealed that, with respect to spacing-crowding, there were two rather than three distinct groups in this sample. When there was less than 2.2 mm crowding at age nine, crowding or spacing increased or decreased by age 16, whereas when there was more than



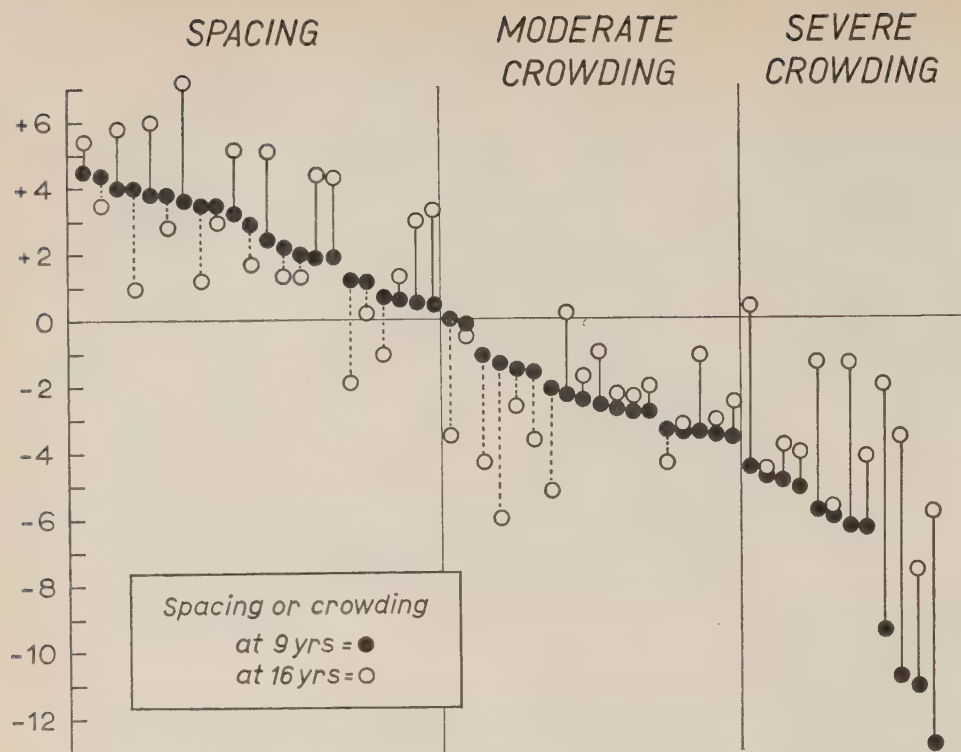


Fig 2 Plot of spacing-crowding at nine and 16 years for 52 subjects, using primary tooth sizes at age nine to compute spacing-crowding at nine.

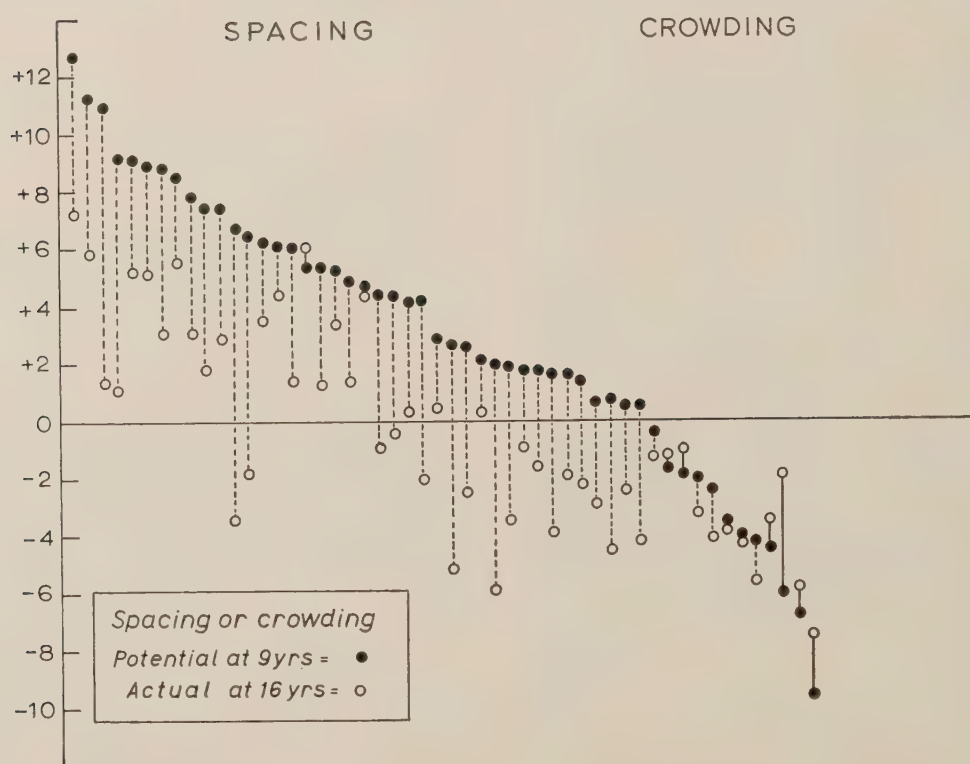


Fig 3 Plot of spacing-crowding at nine and 16 years, using permanent tooth sizes at 16 to compute spacing-crowding at nine. The categories of Figure 2 can only be identified in a very general way in this figure.



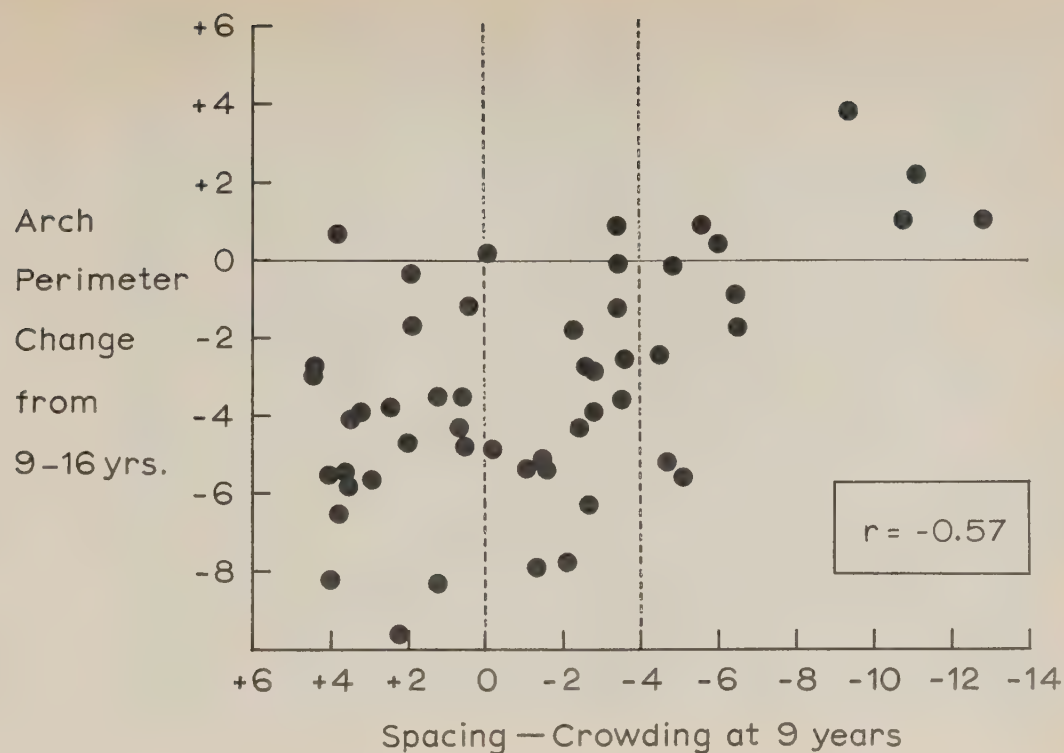


Fig 4 Arch perimeter change from nine to 16 years and spacing-crowding at nine years, using primary cuspids and molars.

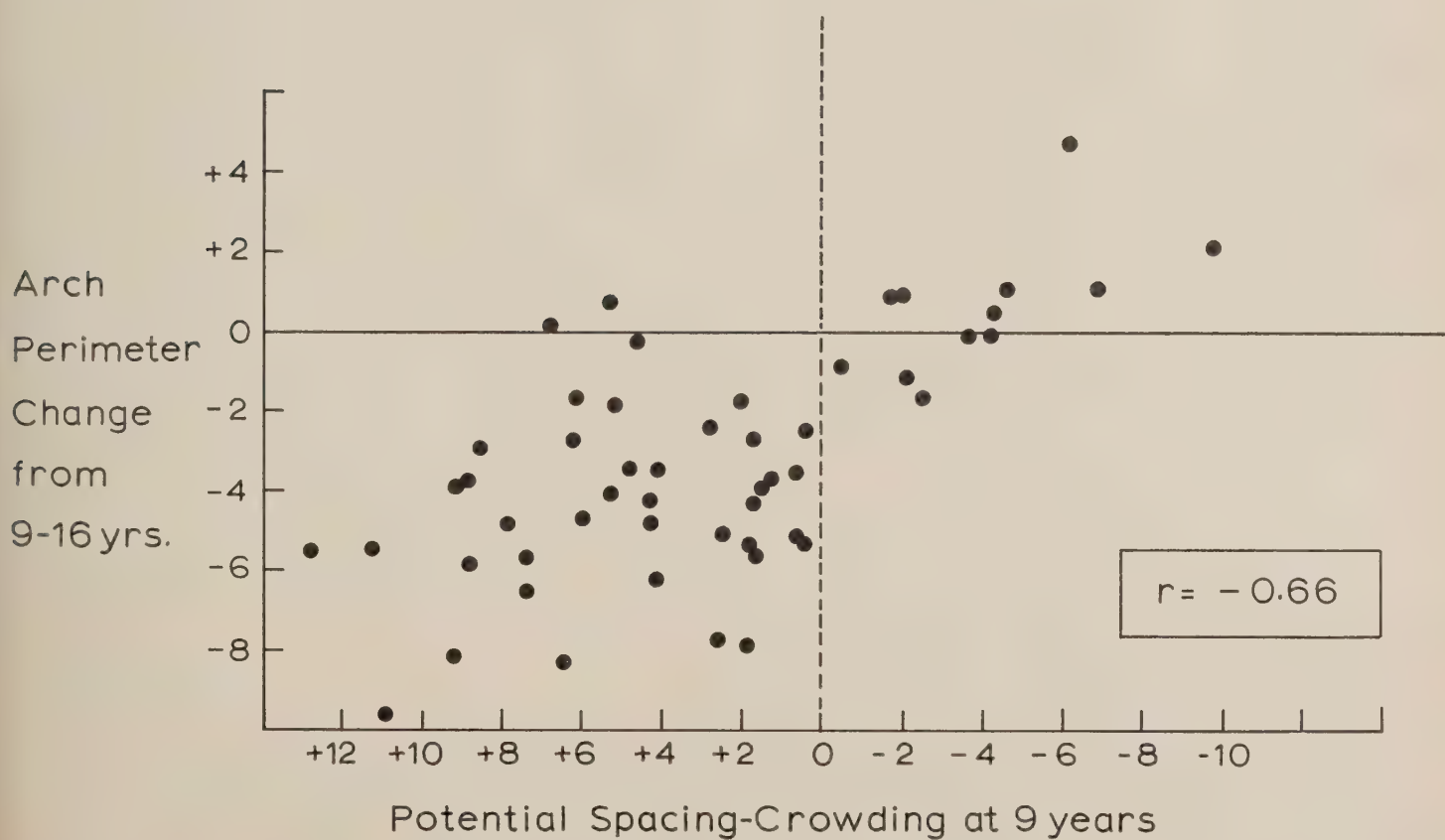


Fig 5 Arch perimeter change from nine to 16 years and spacing-crowding at nine years, using permanent cuspids and bicuspid.



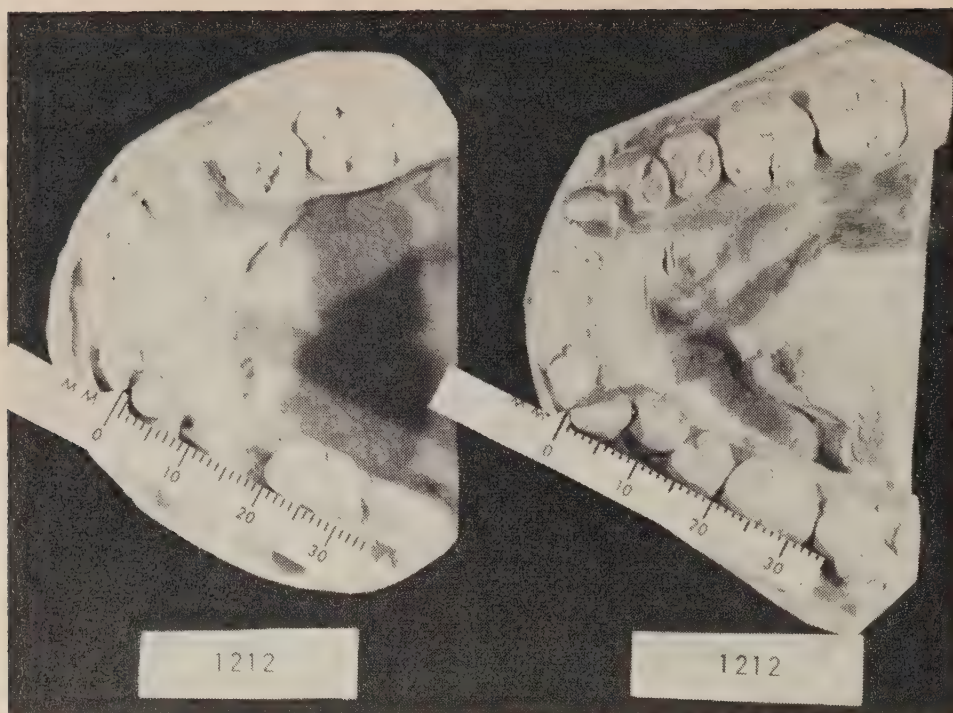


Fig 6 A case in which arch perimeter increased on the left side from nine to 16 years of age by 1.5 mm.

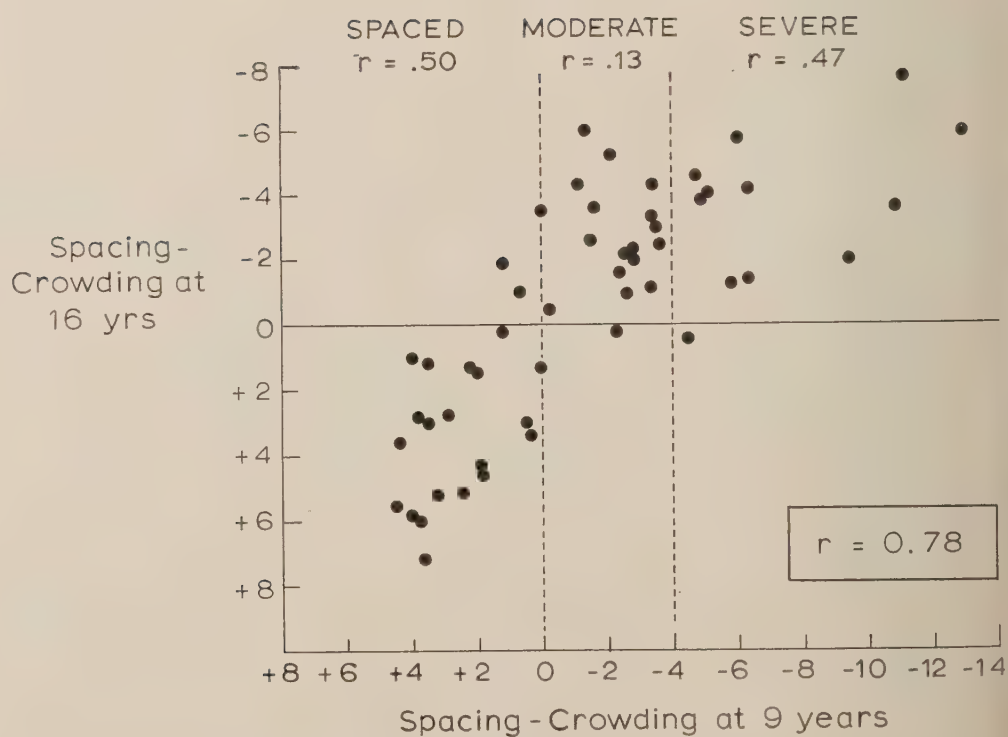


Fig 7 Spacing-crowding at nine and at 16 years using primary cuspids and molars to compute spacing-crowding at nine.



Mandibular arch perimeter changes from nine to 16 years of age

Table 2

| Sample             | 9 years |              |      | 16 years |              |      | Difference<br>(mm) | 't'   | r   |
|--------------------|---------|--------------|------|----------|--------------|------|--------------------|-------|-----|
|                    | N       | Mean<br>(mm) | S.D. | N        | Mean<br>(mm) | S.D. |                    |       |     |
| Total sample       | 52      | 67.9         | 4.23 | 52       | 64.7         | 3.41 | 3.2                | 4.25  | .72 |
| Spaced             | 22      | 70.9         | 2.53 | 22       | 66.5         | 2.81 | - 4.4              | 8.29* | .57 |
| Moderately crowded | 18      | 66.6         | 2.86 | 18       | 63.0         | 3.43 | - 3.6              | 5.94* | .68 |
| Severely crowded   | 12      | 64.3         | 4.81 | 12       | 63.8         | 2.88 | - 0.5              | 0.61  | .85 |

\*Significant at the 1 per cent level of confidence

Changes from nine to 16 years of age in average mandibular spacing-crowding

Table 3

| Sample             | 9 years |              |      | 16 years |              |      | Change*<br>(mm) | 't'   | r   |
|--------------------|---------|--------------|------|----------|--------------|------|-----------------|-------|-----|
|                    | N       | Mean<br>(mm) | S.D. | N        | Mean<br>(mm) | S.D. |                 |       |     |
| Spaced             | 22      | 2.56         | 1.36 | 22       | 2.92         | 2.38 | + 0.36          | 0.82  | .50 |
| Moderately crowded | 18      | - 2.26       | 1.11 | 18       | - 2.72       | 1.62 | - 0.46          | 1.00  | .13 |
| Severely crowded   | 12      | - 7.32       | 2.92 | 12       | - 3.64       | 2.26 | + 3.68          | 3.99† | .47 |
| Total sample       | 52      | - 1.39       | 4.27 | 52       | - 0.55       | 3.66 | + .84           | 1.23  | .78 |

\*A positive value denotes a decrease in crowding (or increase in spacing) and a negative value an increase in crowding

†Significant at the 1 per cent level of confidence

2.2 mm crowding at age nine, crowding decreased during the succeeding seven year period with only one exception. However, in all but a few cases where crowding decreased or spacing increased, primary teeth (usually cuspids in the spaced group and molars in the severely crowded group) were missing at age nine. Substitution of the size of the missing teeth thus had a tendency to inflate the amount of crowding computed at age nine, particularly in the crowded cases where molars were a frequent substitution.

Therefore, another approach was explored not requiring the use of primary tooth sizes. The actual size of the 10 permanent teeth was taken from the 16 year records and subtracted from the arch perimeter at age nine to give a "potential" spacing-crowding value. As before, these values were plotted with the 16 year spacing-crowding values as shown in Figure 3. The previous categories of spacing, moderate crowding and severe crowding cannot be applied in this figure. Using this method, crowding decreased in seven cases. The seven were all in the crowded category at age nine. All but one case spaced at age nine showed a reduction of spacing by age 16. Thus, arches which are spaced at nine tend to be spaced at 16 and arches which are crowded at nine tend to be crowded at 16 using either method.

### Arch perimeter

Since spacing or crowding is the result of the interaction of tooth size and arch perimeter, some consideration of arch perimeter change is necessary to an understanding of the development of spacing-crowding. These data are summarized in Table 2. As expected, given spacing at age nine, arch perimeter

reduction from nine to 16 is on the average quite extensive, amounting to 4.4 mm. Noteworthy is the very slight average amount of arch perimeter reduction (0.5 mm) from nine to 16 for the severely crowded sample.

The relationship of arch perimeter change to spacing-crowding is shown in Figures 4 and 5 using the two methods of computing spacing-crowding described earlier. The relationship between arch perimeter change and spacing-crowding by either method is quite clear: the greater the crowding at age nine, whether computed with primary or with permanent teeth, the less will be the arch perimeter reduction by age 16. The correlations are negative and, as shown, are -0.57 and -0.66 respectively. Using either method, nine subjects for whom arch perimeter increased appear above the zero line with all but two clearly in the crowded categories. One of the cases in which arch perimeter increased is shown in Figure 6. The increase in the left posterior segment was measured at 1.5 mm.

### Spacing-crowding

The relationship between spacing-crowding itself at both ages was also studied and is shown in Figures 7 and 8. While the correlations of 0.78 and 0.79 are of interest statistically, they are of limited value clinically since for any spacing or crowding value at nine, the related value at 16 may fall within a rather broad range. The sub-group correlations shown in Figure 7 and in Table 3 illustrate this point. Similar findings and conclusions have recently been made by Leighton.<sup>16</sup> The changes in spacing or crowding are not statistically significant on the average for subjects



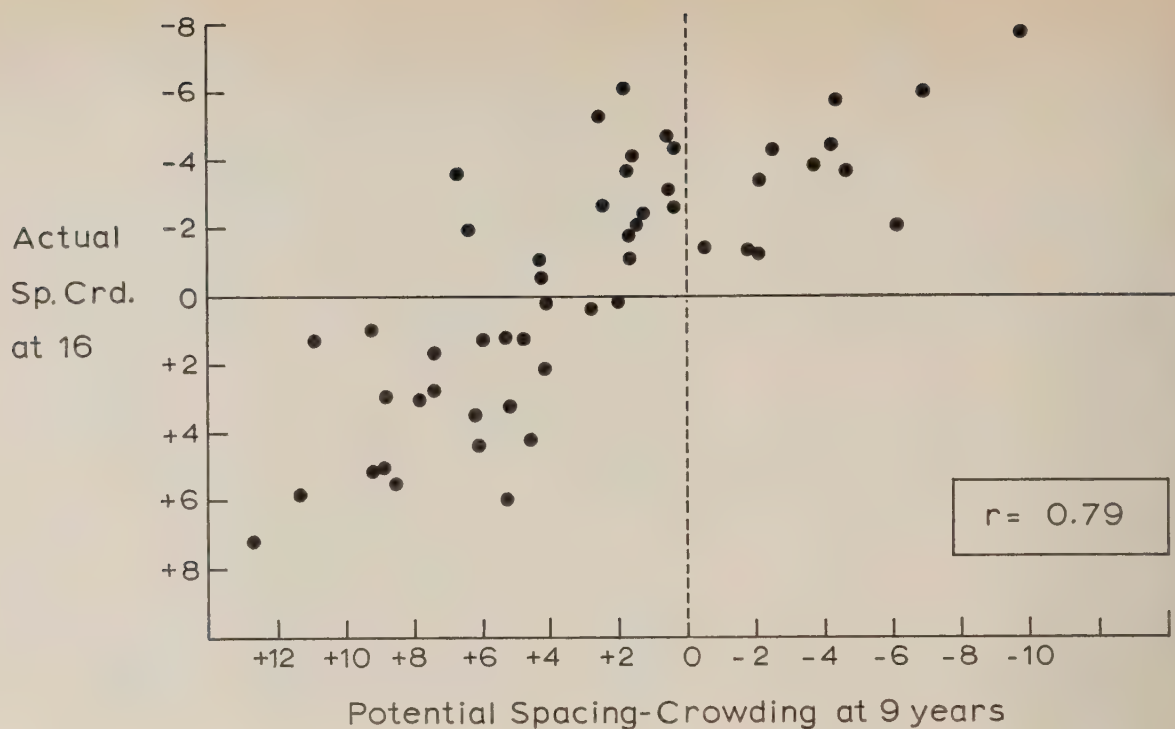


Fig 8 Spacing-crowding at nine and at 16 years, using permanent cuspids and bicuspid to compute spacing-crowding at nine.

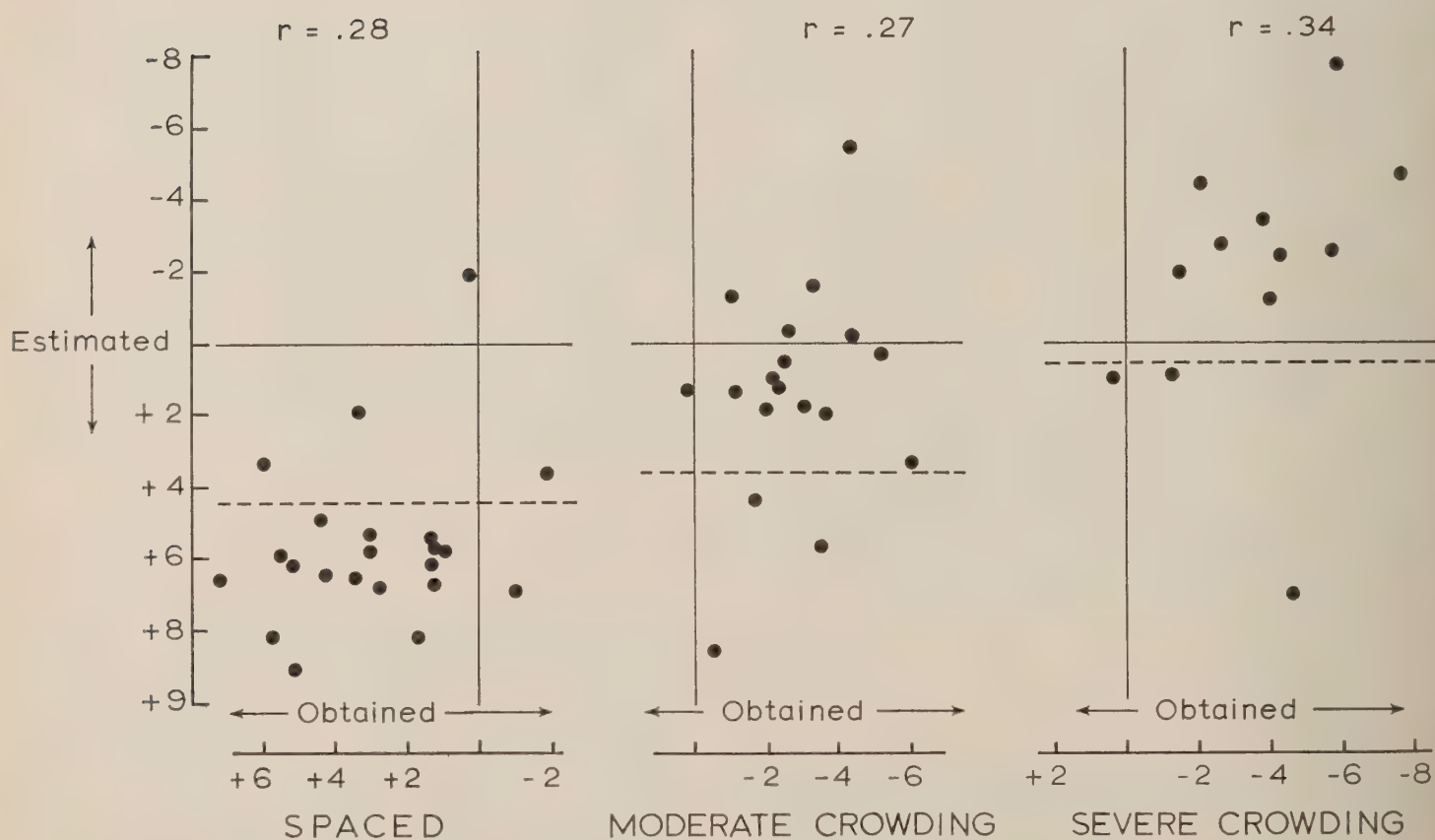


Fig 9 Scattergrams of the relationship between spacing-crowding at 16 and the spacing-crowding estimated at age nine. The interrupted lines indicate possible correction factors for each sub-sample (see Table 2). Overall correlation was 0.68.



that are spaced or moderately crowded at age nine (Table 3), but the apparent reduction in crowding from nine to 16 for the severely crowded group is quite significant. This apparent reduction in crowding was mostly confined to the posterior segments and hence was due in part to inflation of crowding by substitution of primary molar tooth sizes for missing primary molars at age nine. In addition, half of the subjects in the severely crowded group experienced arch perimeter increases which intensified the average decrease in crowding.

In a purely pragmatic sense, it must be observed that the relationship between spacing-crowding at nine and at 16 is sufficiently close to suggest its utilization in estimates of future spacing-crowding.

## Predictions

Since the method labelled "potential spacing-crowding" at nine bears a distinct resemblance to several widely used mixed dentition analyses, the method explained by Moyers<sup>11</sup> and by Graber<sup>10</sup> was tested on these data utilizing the three sub-groups as shown in Figure 9. While the overall correlation between predicted and attained spacing-crowding was 0.68, the sub-group correlations are quite low and in the moderate crowding group, spacing is predicted for 12 subjects who in fact became crowded. Insofar as arch perimeter reduction is seen to be systematically related to spacing or crowding, the application of average arch perimeter reduction factors to future spacing-crowding computations appears logical. These are represented by the interrupted horizontal lines in Figure 9 and should be divided in half to give quadrant values. No factor should be used for crowding in excess of 2.0 mm per quadrant. While the factors suggested (−2.2 mm for each quadrant for spaced dentitions and −1.8 mm for each quadrant for crowding up to 4 mm) will improve the average estimates of future spacing-crowding, they will not reduce the variability inherent in such estimates. In forecasts of future spacing-crowding, tooth size computations gave predictions within 3 mm of attained spacing-crowding in only half of the sample whereas the addition of arch perimeter reduction factors to the computations gave similar predictions in two-thirds of the sample. However, there appears as yet to be no way of segregating the cases which may be reasonably closely predicted from those which cannot.

Interestingly, the reduction factors bear a close resemblance to Nance's average value of 1.7 mm for the late mesial shift<sup>2</sup> (which implies a change in molar relationship). Although several subjects in the severely crowded category showed mesial movement of mandibular molars relative to maxillary molars, the average change from nine to 16 years for that group involved a slight relative distal movement of the lower molars (0.07 mm). The moderately crowded and the spaced categories showed an average mesial movement of the mandibular molars of 0.51 and 0.67 mm respectively, relative to the maxillary first molars. Hence, this study indicates that it is not, as has been implied,<sup>17</sup> the molar relationship which determines how much the arch perimeter will be reduced from the mixed to permanent dentition, but rather the severity of the spacing or

crowding. Of course, other factors not included in the study, such as changes in Curve of Spee and in incisor inclination as well as duration of lack of continuity of the mandibular arch during the changing dentition, may also influence the individual arch perimeter changes. A recent study by Ng<sup>18</sup> suggests that the relative growth rates of the mandible and maxilla may also be a factor.

Finally, it must be concluded that for this sample of malocclusions, although spacing-crowding at age nine is as good an indicator of spacing-crowding at 16 as the mixed dentition analysis, neither performs to a clinically acceptable level of accuracy due to factors beyond the scope of this study. The clinician is therefore well advised to limit his prediction to that of unerupted tooth size and his conclusions to those recommended by Moyers<sup>11</sup>—that any space remaining at the time of the estimate is "space left for molar adjustment."

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## Salivary flow rate of children and its relationship to dental caries

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*In a group of 104 children who were about to commence kindergarten or grade 1 classes in Vancouver the salivary flow rate showed great variation. No correlation could be found between the flow rate of stimulated saliva and dental caries. However, the copious flow observed in a few children with highly pigmented caries suggests an association between high flow rate and an arrestment of caries activity.*

*Après étude de 104 enfants qui devaient entrer à la maternelle ou entreprendre leur 1ère année à Vancouver, on s'aperçut que le taux de sécrétion salivaire variait considérablement. On ne put découvrir de corrélation bien précise entre le taux de sécrétion salivaire et la carie dentaire. Cependant la sécrétion abondante observée chez quelques enfants ayant des caries à haute pigmentation suggère une relation entre le taux élevé de sécrétion et l'arrêt de l'activité de la carie.*

Theoretically, the quantity of saliva secreted should influence caries incidence, even if only by its "washing action" on the teeth. This possibility is exemplified by xerostomia, in which depression of salivation is accompanied by rapid carious destruction of the teeth.<sup>1</sup>

Many investigators have measured the flow rate of human saliva and have compared it with dental caries activity.<sup>2-8</sup> While the results of some are not statistically significant, all show an inverse relationship between the rate of salivary secretion and the incidence of tooth decay. It is evident, however, that very little data are available on the flow rate of the very young child, probably because it is believed that children under eight have difficulty in following the necessary instructions to obtain the secretions.<sup>9</sup>

Salivary flow can be measured at rest or following stimulation. "Resting" saliva describes saliva that is continually being secreted as a result of a conditioned reflex. Consequently, the amount secreted is to a large extent dependent upon the conditions of rest which the investigator is able to impose on the subject. Therefore, the flow rate of resting saliva often has an arbitrary value and is difficult to duplicate.<sup>10</sup> On the other hand, the flow rate of stimulated saliva is easily duplicated. Stimulated saliva is the result of an unconditioned or inborn reflex caused by the introduction of material into the mouth.<sup>11</sup> The rates of flow presented in this study are of stimulated saliva.

The object of this study is to measure the rate of salivary flow in young children (ages five and six) and to determine any correlation which might exist between the flow rate and dental caries.

### Materials and methods

One hundred and four children, aged five and six, were selected from a much larger group which had just started or was about to commence kindergarten (five year olds) and grade 1 (six year olds) classes in Vancouver. These children were selected because they



**Relative caries experience of 104 Vancouver five and six year old children**

**Table 1**

| Caries rating | No. of children |       |       |
|---------------|-----------------|-------|-------|
|               | Boys            | Girls | Total |
| Resistant     | 5               | 6     | 11    |
| Low           | 11              | 9     | 20    |
| High          | 22              | 22    | 44    |
| Rampant       | 10              | 12    | 22    |
| Very rampant  | 5               | 2     | 7     |
| Total         | 53              | 51    | 104   |

said they could chew gum and because they and their parents were willing to participate in the study. All the children appeared healthy and, according to their parents, none had a history of a systemic disorder which required hospitalization or continuing medication.

Dental caries activity was assessed by establishing the relative caries experience of each subject. This was determined by the method of Grainger and Niki-foruk.<sup>12</sup> Following this procedure, each child's caries experience (def, DMF tooth count) was compared to that of children of similar age living in the same location. On this basis each individual is rated according to four categories: rampant, high, low or resistant. When the subject has less caries than 50 per cent of the population in his age group he is rated low; he is rated high when he has more caries than half of his age group. At the extremes, the individual is given a resistant rating where 90 per cent of the population has more decay; he is rated as rampant when 90 per cent has less decay. Because seven of the children in this study with a rampant rating had gross destruction of their teeth, they were rated very rampant. The caries experience of kindergarten and grade 1 children living in the same areas was derived from unpublished data obtained from the Metropolitan Health Service of the City of Vancouver.

The relative caries experience of a patient can be readily and easily established with the Dental Caries Rating Computer which was developed at the University of Toronto and later modified for use elsewhere. This computer is also useful for educating patients about the state of their dental health.

The dentitions of the subjects were examined by the same investigator and under conditions identical to those used in obtaining the data which established the caries experience of the population with whom they were compared. The teeth were examined with the aid of a bright light, using a plane mouth mirror and sharp explorer. The relative caries experience of each subject was determined by the method already described. Table 1 shows the number of boys and girls in each category.

One gram pieces of paraffin were used throughout the study to stimulate secretion of saliva. The choice of paraffin was based on the experience of Becks and Wainwright<sup>13</sup> who have shown that the salivary flow rate is increased considerably by chewing paraffin and that the flow is more constant than when flavoured gum or chicle is used as an activator. Each child was instructed to hold the paraffin in his mouth for 30 seconds before starting to chew; this softened the

paraffin and minimized crumbling. The paraffin was then chewed for one minute and the initial saliva swallowed along with any food debris. The subject was then given a paper cup and instructed to chew the wax and spit all the stimulated saliva into the container for exactly 15 minutes. He was supervised and encouraged to keep chewing and spitting during the entire 15 minute period. At the end of this period, the saliva was immediately transferred to a 100 ml graduate cylinder and the number of millilitres of saliva determined to the nearest cubic centimetre.

At least three salivary flow samples were taken of each child. This was done during the months of July and August and the first two weeks of September. Further samples were taken of 48 of the 104 study group subjects when they were recalled during October, November and December in the same year. These 48 children were recalled because they were available and were similar in age, sex, weight and flow rate to the averages of the whole study group.

Each subject's weight was determined and recorded at the beginning of the study. Table 2 shows the average weights of the subjects according to sex and age.

## Results

The rates of flow of stimulated saliva of the subjects are shown in Table 3. The flow rates are divided into five categories according to the amounts of saliva secreted in 15 minutes. They could be duplicated when taken at the same time of day in any one month. The flow rates of 60 subjects selected at random were recorded in a morning and again in an afternoon. Twenty-six had similar flow rates (less than 10 per cent difference) in the morning and afternoon. Twenty-two had at least 20 per cent greater salivary flow in

**Average weights of 104 Vancouver children**

**Table 2**

|       | Kindergarten<br>(age 5) | Grade 1<br>(age 6) |
|-------|-------------------------|--------------------|
|       | (lb)                    | (lb)               |
| Boys  | 48                      | 53                 |
| Girls | 48                      | 49                 |

**Flow rates of stimulated saliva of 104 Vancouver children**

**Table 3**

| Flow rate<br>per 15 min. | Kindergarten<br>(age 5) |       |       | Grade 1<br>(age 6) |       |       |
|--------------------------|-------------------------|-------|-------|--------------------|-------|-------|
|                          | Boys                    | Girls | Total | Boys               | Girls | Total |
| <6 ml                    | 4                       | 6     | 10    | 4                  | 6     | 10    |
| 6-10 ml                  | 8                       | 13    | 21    | 7                  | 6     | 13    |
| 11-15 ml                 | 7                       | 5     | 12    | 7                  | 7     | 14    |
| 16-20 ml                 | 4                       | 3     | 7     | 6                  | 2     | 8     |
| > 20 ml                  | 1                       | 1     | 2     | 5                  | 2     | 7     |
| Total                    | 24                      | 28    | 52    | 29                 | 23    | 52    |



**Average flow rates of stimulated saliva of 104 Vancouver children**

**Table 4**

| No. of children | Age group    | Sex | Mean flow per 15 min. | Range per 15 min. |
|-----------------|--------------|-----|-----------------------|-------------------|
| 24              | Kindergarten | M   | 11 ml                 | 2-23 ml           |
| 28              | Kindergarten | F   | 10 ml                 | 4-21 ml           |
| 29              | Grade 1      | M   | 14 ml                 | 3-34 ml           |
| 23              | Grade 1      | F   | 10 ml                 | 4-23 ml           |

the afternoon. Twelve had slightly lower flow rates (10 to 15 per cent) in the afternoon.

The average flow rates and the range of each are recorded in Table 4 according to sex and age.

Table 5 shows the relationship between the salivary flow rates and relative caries experience of the subjects. The number of children in each flow rate category is shown according to their dental caries rating.

When 48 of the children were recalled during October, November or December the flow rate in each case was compared with the amount recorded earlier. Eighteen of these children had similar flow rates (less than 10 per cent difference) in summer and autumn. Twenty-two had at least 20 per cent greater salivary flow in summer. Eight had at least 20 per cent lower flow rates in summer.

## Discussion

Previous studies of stimulated saliva of children have shown that the flow rates increase with the age of the child and are slightly higher in males.<sup>6, 14</sup> The data in Tables 3 and 4 tend to confirm these results. However, the rate of salivary flow is also a function of weight rather than of sex or age: the boys and girls in kindergarten have approximately the same flow rates. The flow rates of the grade 1 males are definitely greater than those of the boys in kindergarten, whereas the average flow rates of females in kindergarten and grade 1 are the same. This pattern can be associated with the weight data in Table 2. The average amounts of salivary flow shown in Table 4 agree with the flow rates which have been estimated by McDonald<sup>9</sup> who used the formula  $5.6 + 0.78$  (age of child). This formula gives the average or expected amount of salivary flow during 15 minutes of stimulation.

Meaningful comparisons of data contained in Table 5 proved difficult. For example, in the high caries rating, the variability is so great that there is no direction to the curve. Three sets of statistics were made for each category: (1) males, (2) females and (3) males and females. The Tukay comparison test of statistics was used in each case. No significant relationship between the rate of flow and the caries rating could be shown.

Subjects rated very rampant did not show the expected low flow rates. It is interesting that the caries in three of the seven very rampant cases was extremely pigmented and that these had higher than average flow rates. Although there is a diversity of opinion regarding the source and nature of caries pigmentation, there seems little doubt that the saliva is a factor

**Relationship between the rate of salivary flow and relative caries experience of five and six year old Vancouver children**

**Table 5**

| Flow rate per 15 min. | No. of children in each caries rating group |     |      |         |              | Total |
|-----------------------|---------------------------------------------|-----|------|---------|--------------|-------|
|                       | Resistant                                   | Low | High | Rampant | Very rampant |       |
| < 6 ml                | 0                                           | 3   | 9    | 8       | 0            | 20    |
| 6-10 ml               | 4                                           | 9   | 13   | 6       | 2            | 34    |
| 11-15 ml              | 2                                           | 5   | 12   | 3       | 4            | 26    |
| 16-20 ml              | 4                                           | 2   | 5    | 3       | 1            | 15    |
| > 20 ml               | 1                                           | 1   | 5    | 2       | 0            | 9     |
| Total                 | 11                                          | 20  | 44   | 22      | 7            | 104   |

since it serves as a vehicle for the cause of the pigmentation.<sup>15-18</sup> Inhibition of caries has often been associated with an increased intensity of pigmentation of the lesion.<sup>19-22</sup>

Although most subjects had similar flow rates in the morning and afternoon, there were many whose flow rate was greater in the afternoon. This could be due to two of the factors outlined by Nash and Morrison:<sup>23</sup> (1) nervous system influence (sleep and fear greatly decrease the flow of saliva); (2) gastro-intestinal influence (hunger and fasting diminish salivary flow). Whether the children who secreted less saliva during the morning were more sleepy, fearful or hungry than they were in the afternoon was not considered during this study; so there is no way of knowing whether this was so.

Although the results from salivary flow rates measured later in the year are not statistically significant, it is difficult to explain why so many children had less salivary flow in the autumn months than during the summer. Perhaps the flow rates of many children are decreased by emotional factors associated with commencing school. Such factors have been tentatively linked to the aetiology of caries, but the evidence is meagre. Manhold and Hafner<sup>24</sup> have shown that "people with emotional problems have a higher incidence of dental caries than a group with medical problems and a group from the general population." Phipps and Marcuse,<sup>25</sup> on the other hand, could find no correlation between anxiety and dental caries. Cohen<sup>26</sup> concluded that the only possible mechanism to relate dental caries with emotional influences would be the part the emotions play in such factors as the choice of food, oral hygiene and the rate of flow and composition of saliva.

## Summary

It was relatively easy to establish the flow rates of stimulated saliva of children five and six years of age. The rate of flow of this group of 104 children showed great individual variation. However, the individual flow rate of each child was relatively constant and could be reproduced fairly accurately when taken at the same time of day during any one month period. There was a tendency for more saliva to be secreted in the afternoon than in the morning.



In these children there was no correlation between the flow rate of stimulated saliva and dental caries. However, the copious flow observed in the few children with highly pigmented caries suggests a potential association between high flow rate and an arrestment of caries activity.

The observation that salivary flow decreased in October, November and December is interesting, even though there were not enough subjects to rule out the possibility of chance. Further investigation may show that the emotional influence of commencing school diminishes the rate of salivary flow at this time of the year.

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**FDI Meetings and Tax Deduction** — The Department of National Revenue has ruled that the XV World Dental Congress in Mexico City, October 22-27, 1972, and the FDI annual session in Sydney, Australia, July 15-20, 1973, are acceptable locations for conventions of the Fédération Dentaire Internationale for purpose of deduction under subsection 20(10) of the Income Tax Act.

The Department is also re-examining its policy regarding

the deduction of costs of travelling to conventions. It is proposed that where such travel combines a holiday with attendance at a convention, the travelling expenses incurred by the taxpayer, exclusive of those incurred by his family, should be apportioned on some reasonable basis. The new policy, when finalized, will be incorporated in a DNR *Interpretation Bulletin* on convention expenses, which will be available to the public on request.



### Premature loss of second primary molars

A. J. Simons, DDS  
Edmonton

Of approximately 500 children recently examined at the Faculty of Dentistry, University of Alberta, 361 needed dental treatment. These children, aged three to seven years, were examined for missing second primary molars. Panoramic radiographs were taken of each subject and examined for evidence of these teeth.

In the 192 boys 15.0 per cent of all second primary molars were missing, and in the 169 girls 14.9 per cent were missing. Sixteen (4.4 per cent) had lost three second primary molars; seven (1.9 per cent) had lost four of these teeth (Table 1).

These findings underscore the importance of necessary space management in relation to tooth eruption, development of the dentition and future space requirements.

#### Discussion

Previous studies have shown that congenital absence of the second primary molar is rare.<sup>1-3</sup> None of the 361 children described in this report presented any history or reason to support congenital absence of these teeth. Other reports about development and exfoliation of the dentition indicate that second primary molars are very seldom exfoliated before the age of seven.<sup>4</sup> Presumably all second primary molars in the subjects here described were therefore lost prematurely.

Second primary molars lost in the 361 children numbered 218 and accounted for 15 per cent of all

second primary molars. The loss ratio between maxillary (57) and mandibular (161) teeth was 1:3 (Fig 1).

The first permanent molars had not yet erupted in 200 subjects aged three to five. Yet these children had already lost 78 second primary molars. The need for space management in children with premature loss of primary molars is widely acknowledged<sup>5-8</sup> (Fig 2).

Baume<sup>9</sup> reports that 40 per cent of primary dental arches already lack sufficient space and represent a

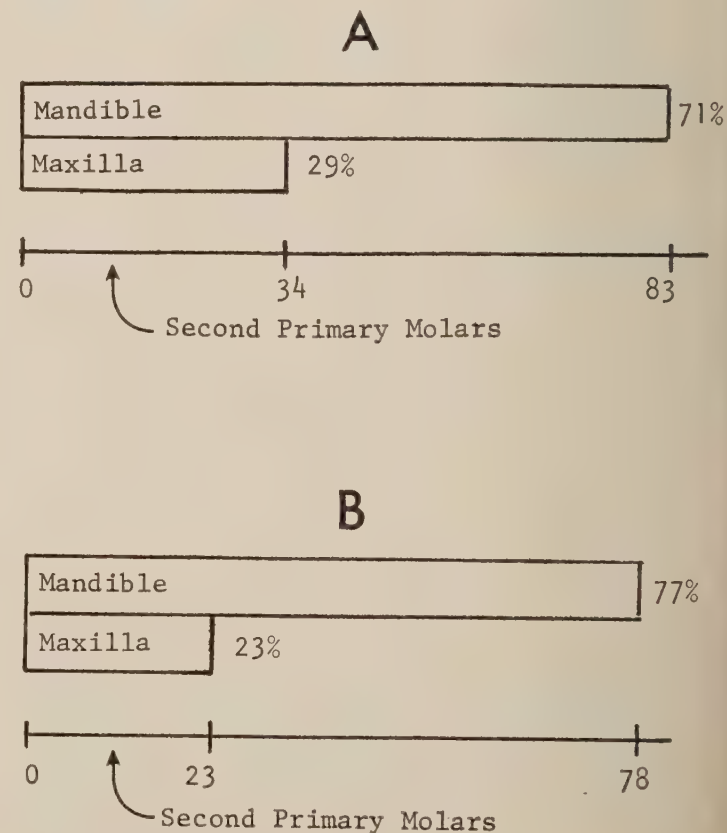


Fig 1 Number of second primary molars lost in 192 boys (A) and 169 girls (B).



# Children who lost three or more second primary molars

Table 1

| No. of children | Age | No. of children with loss of |      |                         |     |
|-----------------|-----|------------------------------|------|-------------------------|-----|
|                 |     | 3 second primary molars      | %    | 4 second primary molars | %   |
| 21              | 3   | 0                            | —    | 0                       | —   |
| 89              | 4   | 5                            | 5.6  | 0                       | —   |
| 90              | 5   | 1                            | 1.1  | 0                       | —   |
| 96              | 6   | 3                            | 3.1  | 4                       | 4.1 |
| 65              | 7   | 7                            | 10.7 | 3                       | 4.6 |
| 361             |     | 16                           | 4.4  | 7                       | 1.9 |

potential for future crowding problems. In the age group under discussion, space management should therefore be instituted without delay. This requires the planning and construction of an appropriate spacer.

The 161 children who already had erupted first permanent molars had lost 140 second primary molars (Fig 2). Their orthognathic needs must be studied in relation to appropriate space management.

## Summary

A group of 361 children aged three to seven years, who required general paedodontic care, were examined. Fifteen per cent of all second primary molars were found to be missing. The importance of the necessary space management is emphasized in relation to tooth eruption, development of the dentition and future space requirements.

The author expresses appreciation to Doctor D. L. Stewart and the staff of the Department of Dental Radiology for assistance in the radiographic survey. A Siemens Type OP2 Orthopantomograph with Monodor control unit was used for panoramic radiography.

The author's address is: Faculty of Dentistry, University of Alberta, Edmonton 7.

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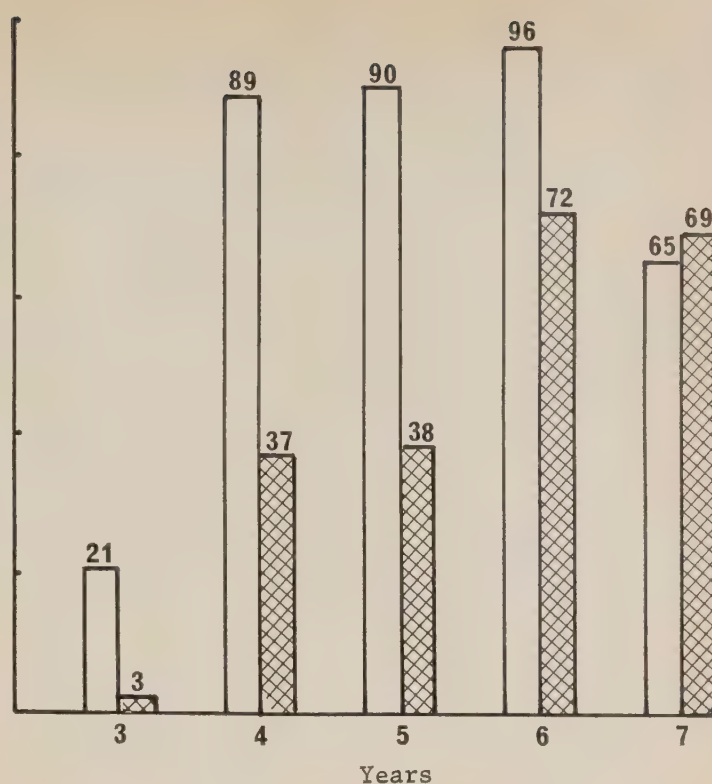


Fig 2 Number of children aged three to seven years with missing second primary molars.

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## Hairline fracture of a cusp: report of case

F. B. Wiebusch, DDS  
Richmond, Va

One of the most awkward problems a dentist encounters is that of a patient who suffers from intense dental pain which cannot be located or eliminated. A case in point relates to pain that is experienced only when the victim chews hard or tough foods. The patient can often identify the quadrant of the mouth where the pain is located but not the actual tooth. This pain may be due to a hairline fracture in a cusp, the fracture being so small that it cannot be detected on radiographs (Fig 1).

### Report of case

A patient presented to the clinic complaining that he felt a sharp pain of short duration when chewing hard or tough foods. There was no evidence of gingivitis or caries and the teeth were insensitive to percussion. Radiographs showed no abnormalities such as alveoclasia, occlusal trauma, or periapical pathosis. The teeth were examined for premature contacts, poorly sealed margins on restorations, pulpal pathosis, evidence of bruxism, and the presence of periodontal pockets. Since the results of all these explorations were negative, the dentist told the patient that he was unable to find the cause of the pain and was asked to return if he had further trouble.

A few days later he requested another appointment. He emphasized that he experienced distress only at mealtimes. Pain did not come and go sporadically, never occurred when he retired, and could not be induced by closing the mandible into centric occlusion.

The patient reported that sharp pain occurred on the "working side" of the dental arch only when such

foods as crisp bacon, a crust of toast, lettuce, seeded roll, or hard outer edge of roasted meat were eaten — all items requiring a maximum amount of chewing effort. Mastication of soft foods posed no problem. He did mention, however, that one evening he had an unpleasant experience while eating fish. Chewing with abandon on a food that was expected to offer little resistance, he bit upon a small bone and immediately experienced excruciating pain.

An occlusal prematurity was again suspected and the teeth were re-examined. Articulating paper markings and wax bite registrations showed no unusual discoveries. Since several tracings suggested a possibility of occlusal discrepancies, selective grinding was performed on cusps and inclined planes which were suspect. Once more the patient was dismissed and told to chew on the other side of the mouth for a few days in order to allow the periodontal tissues, possibly injured from occlusal trauma, to recover.

Approximately two weeks later the patient requested another appointment. The troublesome tooth was no better than when therapy began. He again complained of pain when chewing and seemed certain of the quadrant from which the discomfort originated. This time, however, the distress lasted for a longer period of time than it did previously.

The oral structures were re-examined and new radiographs were taken. Since the pain was experienced only when eating, a premature contact in a functional relationship of the occlusion was postulated as a possible cause. The lingual cusps were evaluated for this possibility, but to no avail.

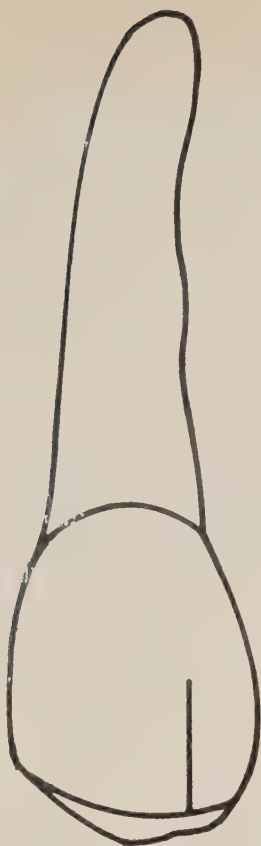
After numerous fruitless visits, the patient returned one day and said that he had found the prematurity, holding out a fractured tooth cusp in his hand. He reported that his previous chewing difficulty had disappeared.

### Discussion

The dentino-enamel junction is one of the most exquisitely sensitive areas of the body. Maximum



Fig 1 During examination, a fracture line on the cusp of a tooth may go undetected by the dentist.

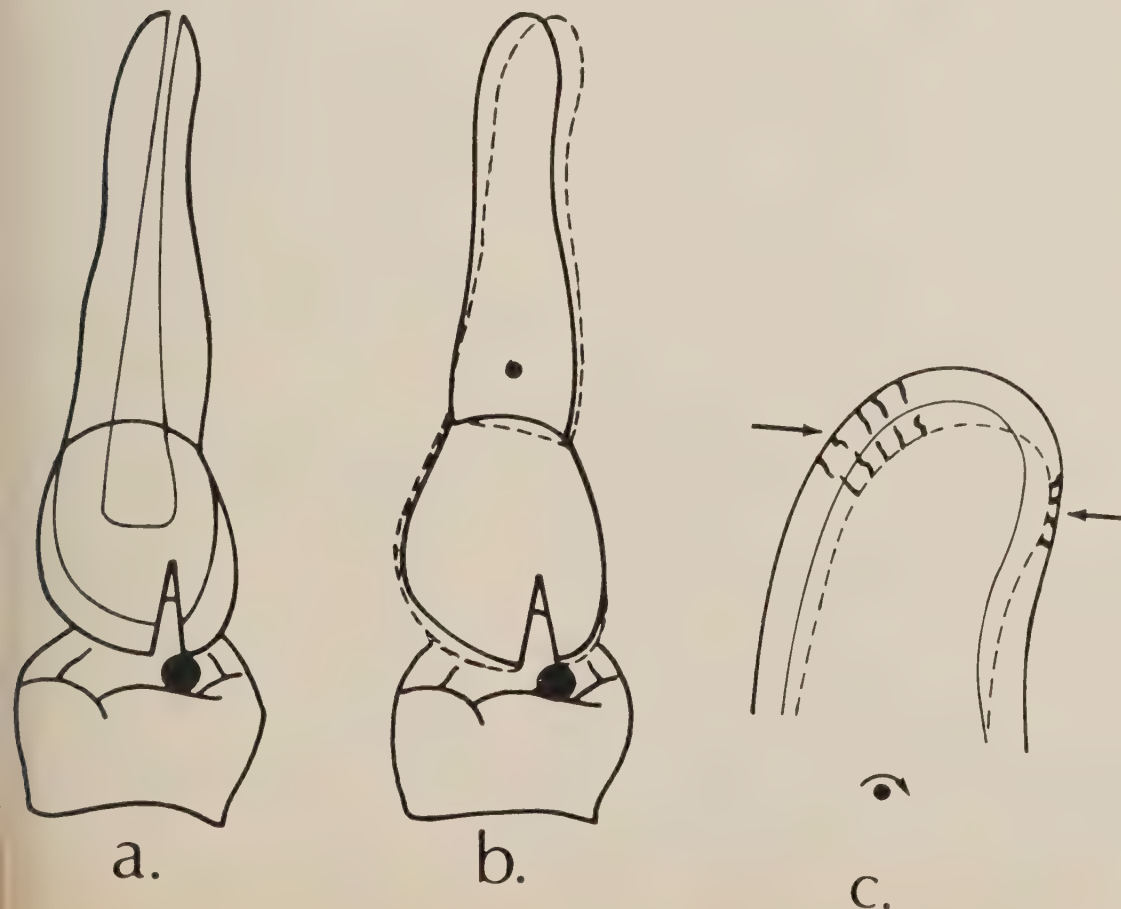


chewing pressure required to masticate hard or tough foods can result in a slight separation of a fractured or cracked cusp from the remainder of the tooth (Fig 2a). Within the line of fracture itself, air and saliva contact expose dentinal tubuli and irritate odontoblastic processes in the dentine.<sup>1, 2</sup> The unpleasant sensation that results is usually of momentary duration.

Discomfort may also be evident during eating if the base of a fracture terminates in the dental pulp (Fig 3). The resultant pain in this case is often severe and long lasting. When a hard morsel of food separates the halves of a fracture to its base and thereby involves the pulp, profound discomfort ensues. Any exciting agent for pulpalgia — biting on the tooth or contacting cold fluids — will produce pain. Over a period of time an insult of this nature permits bacterial invasion, resulting in the development of a pulpitis which terminates in pulp death. After a true pulpitis develops, definitive symptoms become apparent and the diagnosis of the problem becomes relatively easy.

Biting on a fractured cusp frequently causes the tooth to rotate slightly as it becomes depressed in its alveolar housing. As a result of this movement periodontal membrane fibres can be torn from their cemental or alveolar insertions. At the same time, the impact

Fig 2 A, maximum chewing pressure required to crush tough foods can result in separation of a fractured cusp from the remainder of the tooth. B, as the fractured cusp separates from the tooth, the root twists in its alveolar housing. C, during such rotation, the periodontal membrane fibres are torn from their osseous insertions. On the opposite side of the tooth, blood vessels, nerves, and periodontal membrane fibres are compressed and crushed against bone.





of percussion on the tooth may crush blood vessels and nerves in the periodontal membrane space against alveolar bone. As a result of such trauma hyperaemic changes take place in the minute blood vessels and cause the tooth to extrude, which in turn will probably produce an occlusal prematurity; in other words, one problem creates another (Fig 2a-c). Consequently, endodontic problems may follow a tooth fracture.

### Detection and treatment

To discover a small fracture in a cusp, the crown of a tooth requires frequent careful examination. The use of reflected light on the teeth can help the practitioner identify such a fracture. Another method to aid in detection is to paint the crown with tincture of iodine. After the solution has dried and the residue has been washed away, the fracture is often visible as a dark line. Alternatively, the patient may be asked to chew on a small, thin wooden shaving fabricated from a tongue depressor, the other end of which is held by the dentist. The shaving can be wrapped in articulating paper to leave a mark on the tooth as contact is made with the wooden stick. As the patient bites, the tooth will spread sufficiently to cause pain and the dentist may see a slight movement of the fractured cusp.

Ingle<sup>1</sup> reports that one of the best implements for examining a tooth suspected of fracture can be made by folding a No. 7 lead shot into a handle of cellophane tape. By asking the patient to bite on the shot in various ways, the practitioner may be permitted to observe the cusp which is shearing away.

Radiographs will reveal an obvious split if the fracture line is positioned in direct alignment with the central rays but the shadow created by a microscopic crack will seldom appear in the film.

After the crack is detected the outline of the lesion should be determined. The dentist may be able to remove the entire fractured area by preparing the tooth for a restoration provided the involved area is small and terminates in the dentine. For an extensive fracture, however, a restoration that completely covers the coronal portion of the tooth is necessary to prevent torque reactions during chewing.

With a fracture that terminates in the pulp, the tooth should be prepared for a full crown restoration. Until the future health of the pulp is determined, the restoration requires temporary cementation with zinc oxide and eugenol. If the fracture has produced pulpitis, root canal therapy is indicated followed by full crown coverage.

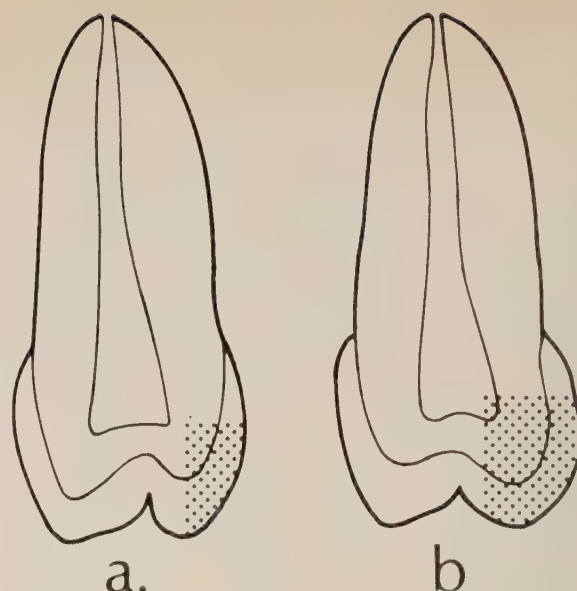


Fig 3 A, in cross section, the shaded area depicts the depth of the fracture which extends into the dentine. B, the shaded area reveals the depth of the fracture which extends into the dental pulp.

A single rooted tooth with a fracture which involves both crown and root surfaces will probably have to be extracted. However, a fracture in a multi-rooted tooth may be managed differently: by hemisectioning the tooth, removing the fractured portion of the tooth, employing endodontic therapy on the retained root, and fabricating an appropriate restoration.

### Summary

A case of a hairline fracture in a cusp is presented. The author describes the difficulties in detecting such an injury and explains how it can be treated. Since this problem occurs frequently, dentists should bear in mind the possibility of fracture when examining a tooth that is sensitive to masticatory stress.

Doctor Wiebusch is director of continuing education and professor of periodontics at Virginia Commonwealth University, Medical College of Virginia, School of Dentistry, Richmond, Virginia 23219.

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## Book Reviews

### Dental Examination Review Book

A. F. Gardner. Vol 1, Ed 3; Vol 2, Ed 2; Vol 3. Flushing, NY, Medical Examination Publishing Co Inc, 1971. 350 p. \$7.50 per copy

This latest edition of the *Review Book* is published in three volumes. The first one covers anatomy, microbiology, physiology, general pathology, oral histology and embryology, biochemistry, nutrition and dental anatomy. Volume 2 deals with operative dentistry, pharmacology, complete and partial denture prosthodontics, crown and bridge prosthodontics, oral surgery and anaesthesia. The third volume is devoted to paedodontics, orthodontics, oral pathology, oral radiology, periodontics, endodontics and dental materials.

The preface says that "the variations in test questions are offered to familiarize the dental student with the various types of national board, state board, and school examinations in use today." Gardner also has this admonition: "Do not compromise by simply looking up the correct answers. The mature approach is to return to your textbook."

Used in this manner, these books are of great value to students as well as general practitioners and specialists, for they afford a fast check of one's basic knowledge.

The chief criticism is why such publications are necessary in the first place. Unfortunately, true/false and multiple choice questions are nowadays an accepted method of testing a student on many subjects in the shortest possible time by the use of computers. No team of experts can ever achieve a 100 per cent result in any subject by such methods. The questions are invariably taken out of context and, as a result, the answers expected frequently bear no relationship to true understanding. In addition, the "correct" answer may only be an opinion of the author. His view may not be based on fact or could be open to debate.

Provided one is aware of such shortcomings, these three volumes are nev-

ertheless useful for students and teachers. Each contains over 2,300 multiple choice questions classified by subject with references containing the appropriate answers and textbook sources for the material.

R. F. Harvey

### Preprosthetic Oral Surgery

T. J. Starshak. St. Louis, The C. V. Mosby Company, 1971. 189 p. Illus. \$15.25

This work is intended primarily for oral surgeons, but it can also be useful to the general practitioner to demonstrate the techniques available for better preparation of the mouth for prostheses.

The book covers every necessary aspect of preprosthetic oral surgery. The author expresses very well his interest in the conservation and utilization of the normal tissues with strict adherence to established surgical principles. On the other hand, he has deliberately

omitted procedures which he considers to be biologically and physiologically unsound, such as implants.

The photographs in the book are excellent and generally the diagrams are well done. There are nine chapters and a bibliography covering such topics as oral anatomy and physiology, principles of surgery, corrective soft tissue surgery and correction of unfavourable maxillo-mandibular relationships as well as other related subjects.

*Preprosthetic Oral Surgery* is a definite aid to the practising oral surgeon and a guide to the general practitioner and prosthodontist on what preprosthetic oral surgery can do. It can also be used as an instruction text for the graduate student of oral surgery.

The book is well written, but I regret that the subject of implants has been omitted, mainly because in recent years they have been surrounded by controversy and this would have been a suitable place to discuss their advantages and disadvantages.

K. C. Bentley

### Dental Materials

John Farrell. London, Henry Kimpton, 1971. 134 p. £1.75

This small paper-bound book is presented as a handbook for students, practitioners and technicians. In the preface the author describes it more as a series of lecture notes which may be useful as an introduction to the subject rather than as a particularly scientific publication. It is clearly laid out in short titled paragraphs. It is easy to read and there are occasional flashes of humour.

Fig 310 Preprosthetic oral surgery.



Fig 310 Preprosthetic oral surgery. A. Preoperative view of the maxilla showing the location of the maxillary sinus. B. Preoperative view of the mandible showing the location of the mandibular canal. C. Postoperative view of the maxilla showing the location of the maxillary sinus. D. Postoperative view of the mandible showing the location of the mandibular canal.

Fig 311 Anaplasia removal of teeth.



Fig 311 Anaplasia removal of teeth. A. Preoperative view of the maxilla showing the location of the maxillary sinus. B. Preoperative view of the mandible showing the location of the mandibular canal. C. Postoperative view of the maxilla showing the location of the maxillary sinus. D. Postoperative view of the mandible showing the location of the mandibular canal.



The order of presentation begins with the structure and properties of materials, then continues with filling materials, dental metals, impression materials, model materials, waxes, denture base materials, soft linings, splints, packs, abrasives and polishing agents. Each of these areas is covered in a succinct style mainly in a didactic fashion. There are no illustrations except for a few chemical structures.

Unfortunately the oversimplification necessary for the note style of presentation has resulted in several obscurities and numerous factual errors, especially in the sections on structure and properties of materials, dental metals and acrylic materials. The author has also been overtaken by events in that scant or outdated information is given on newer materials such as spherical amalgam alloy, composite resins and cements. However, as stated in the preface, this difficulty is realized and frequent revision is promised. This is a handy little book but it can be recommended only as an elementary introduction to dental materials for those with little background on the subject.

D. C. Smith

## Annotations

### Periodontal Health Catalogue

American Academy of  
Periodontology, Chicago. \$3.00

This new publication contains a comprehensive source listing of professional and patient-oriented periodontal instruc-

tional aids. It provides information on printed and audiovisual materials which have been developed by individual dentists, schools, organizations and commercial companies. It indicates where each item may be obtained, either by purchase or free.

Materials listed in the catalogue include films, slides, booklets, posters for patient education and complete audiovisual instructional materials on anatomy, pathology and treatment procedures for the dentist.

A special section on oral hygiene aids lists manual and electric toothbrushes, dental floss, irrigating devices, disclosing tablets and solutions and packaged oral hygiene kits.

Copies of the *Periodontal Health Catalogue* may be obtained for \$3, prepaid, from the American Academy of Periodontology, 211 East Chicago Ave, Chicago, Ill 60611, USA.

### Histological Typing of Oral and Oropharyngeal Tumours

P. N. Wahi, Bernard Cohen, U. K. Luthra and H. Torloni. Geneva, World Health Organization, 1971. (Available in Canada from Information Canada, Ottawa) 27 p. Illus. Book and slides \$16.75; book only \$4.00

This is the fourth title in the series *International Histological Classification of Tumours* published by the World Health Organization.

The WHO International Reference Centre for Histological Definition and Classification of Oral and Oropharyngeal Tumours was established in 1963 at the Department of Pathology, Sarojini Naidu Medical College, Agra, India. It has worked in close collaboration with pathologists in 11 countries to produce this latest volume in the series of tumour classifications. By developing uniform classifications and nomenclatures for the microscopic definition of tumours, the World Health Organization seeks to facilitate international communication and comparability of data in oncology.

An introductory text outlines the histological considerations pertaining to the oral and oropharyngeal tissues and discusses the grading and spread of carcinomas in this region of the body. The classification itself is divided into seven major categories. Accompanying explanatory notes embody some useful diagnostic criteria, especially in regard to tumours of squamous epithelium and tumour-like conditions.

The book includes 40 colour plates reproducing photomicrographs of the main tumours and related lesions covered by the classification. A set of 52 colour transparencies is also available.

### Guide to American Graduate Schools

H. B. Livesey and G. A. Robbins. Ed 2. New York, Viking Press, 1970. (Available from The Macmillan Company of Canada Ltd, Toronto) 410 p. \$6.95

This book provides basic information on over 600 institutions in the United States offering graduate and professional study. Listed are programs in all areas, including dentistry. Admission and degree requirements, standards, enrolment and faculty figures, tuition charges, financial aid opportunities, and research and housing facilities are given wherever possible. Careful use of the data summarized allows the reader to become more fully aware of the opportunities available to him. He can then narrow his selections to the institutions he is likely to find most suitable for his purposes.

### Essential Medicine for Dental Practice

Peter Cleaton-Jones. Springfield, Illinois, Charles C. Thomas, 1971. (Available from McGraw-Hill Company of Canada, Toronto) 86 p. \$8.00

This book is intended as a guide to be kept at hand in the dental operating room and to provide a rapid answer to the problem on hand. The text is concerned with problems that may arise out of a complication of a known medical order. It also deals with problems that arise in the long-term management of patients with known medical conditions, with emphasis on the prevention of complications. Medical conditions dealt with include various forms of heart disease, pregnancy, penicillin sensitivity, patients on corticosteroid therapy, clotting disorders, respiratory disease, diabetes, "faintings," allergies and epilepsy. Also included is a short guide on history taking and emergency drugs.

### The Doctor's Shorthand

Frank Cole. Philadelphia, London and Toronto, W. B. Saunders Company, 1970. 179 p. \$4.90

This useful book is a compendium of abbreviations commonly used in reports, charts, journals and other forms of medical and dental communication. Its purpose is to facilitate the reading of scientific articles and to help standardize abbreviations used in medical writing.





## An overhaul for dental education

Revamping dentistry's educational system is claiming increased attention from the academic community these days. Foremost in the minds of many educators is the question of shortening the overall period of undergraduate training from four to three years.

Can it be done without sacrificing something in the quality of that training and without impairing the capability of the graduate? Yes, says Sheldon Rovin of the University of Kentucky, who claims that modern educational techniques and individualized instruction confer a flexibility that was lacking in former years. He notes, too, that several dental schools have already initiated three year programs for selected students, and predicts a growing swing away from the conventional four year undergraduate curriculum.

The trend may come none too soon. Two years ago Americans were warned by the Carnegie Commission on Higher Education that the United States was facing a critical shortage of health manpower. "This shortage can become even more acute as health insurance expands, leading to even more unmet needs and greater cost inflation, unless corrective action is taken now," the Commission said. Calling for a 20 per cent increase in dental students and more allied health personnel to meet health needs in the 1970's, the Commission pointedly warned that "it takes a long lead time to get more doctors and dentists."

It is therefore reassuring that dental educators are approaching their task with an open mind, restructuring dental education to accommodate to new challenges, discarding traditional concepts that no longer meet the test of our time, adopting innovations that do.

Canadians are spending an unprecedented \$260 million annually on dental care. An overhaul of the educational system as recommended by Doctor Rovin may therefore be needed if they are to get their money's worth.

## Destroy those "disposables"

Most dentists and physicians regard disposable hypodermic needles and syringes as one of the blessings of modern technology. But like many other good things, they also have their drawbacks. One of these is the singular attraction they hold for young children who have been known to comb garbage receptacles outside clinics and medical or dental offices in their search for used syringes and needles.

Young minds absorbed in the fun of an innocent game are totally oblivious to the dangers that lurk in such "toys." But the parents of a child who suffers injury or infection as a result of an accident with a discarded needle or syringe are apt to vent their feelings against the source of supply — dentists and physicians. It would be prudent, therefore, to render all syringes and needles useless before they are deposited in a garbage receptacle. For the busy practitioner this task may be facilitated by purchasing a simple and inexpensive destructor unit obtainable from surgical supply stores.



## Une révision de l'éducation dentaire

## Détruisez vos aiguilles

La restructuration du système d'enseignement dentaire est une question qui se pose de plus en plus à tous les organismes s'occupant d'enseignement. Avant tout, pour la plupart des personnes intéressées, il s'agit de raccourcir le cycle universitaire de quatre à trois ans.

Cette opération peut-elle s'effectuer sans sacrifier la qualité de la formation donnée et sans surcharger l'étudiant? Oui, de répondre Sheldon Rovin de l'Université du Kentucky, qui prétend que les techniques modernes d'enseignement ainsi que les cours individualisés permettent une flexibilité qui n'existait pas auparavant. Il fait aussi remarquer que plusieurs facultés dentaires ont déjà mis sur pied des programmes d'une durée de trois ans accessibles à certains étudiants, et il prévoit que bientôt le cycle conventionnel de quatre ans cèdera le pas de plus en plus à celui de trois.

Il y a déjà deux ans, la Commission Carnegie sur l'enseignement supérieur avait averti les Américains qu'ils auraient bientôt à subir une pénurie de main-d'oeuvre dans le secteur santé. La Commission déclarait alors: "Cette pénurie risque de devenir de plus en plus aigüe puisqu'on assiste à l'extension de l'assurance-maladie, nous conduisant à des besoins encore plus grands, et à l'inflation plus grande des coûts, à moins que nous ne prenions des mesures correctives dès à présent".

Prônant une augmentation de 20 p.c. du nombre d'étudiants dentaires et un personnel sanitaire plus nombreux pour être en mesure de rencontrer les besoins dans ce domaine, la Commission avait averti qu' "il faut beaucoup de temps pour former plus de médecins et de dentistes".

Il est donc rassurant de constater que les professeurs de médecine dentaire conçoivent leur rôle de façon dégagée, qu'ils soient capables de restructurer l'enseignement dentaire de façon à relever le défi qui s'offre à eux, de rejeter des concepts traditionnels qui ne correspondent plus aux exigences de notre temps et d'adopter des solutions qui, elles, collent à la réalité.

Les Canadiens dépensent chaque année la somme record de \$260 millions en soins dentaires. Un système d'enseignement tel que préconisé par le Dr Rovin semble donc nécessaire s'ils veulent en avoir pour leur argent.

La plupart des dentistes et des médecins considèrent les aiguilles et les seringues hypodermiques à jeter après usage comme un bienfait de la technologie moderne. Mais comme toute bonne chose, elles ont aussi leurs inconvénients. Parmi ceux-ci il faut mentionner l'attraction singulière qu'elles exercent sur les jeunes enfants qui, nous rapporte-t-on, passent au peigne fin les poubelles des cliniques et des cabinets dentaires ou médicaux, en quête de ces précieux objets.

Absorbés par l'excitation d'un jeu innocent, ces jeunes esprits oublient les dangers que comportent ces "joujoux". Mais les parents qui se sont trouvés en présence d'un enfant souffrant d'une blessure ou d'une infection due à un accident causé par une aiguille ou une seringue qui avait été jetée après usage, sont prêts à manifester leurs sentiments vis-à-vis du dentiste ou du médecin qui fut la cause de cet accident. Il serait donc sage de détruire toutes les aiguilles et les seringues avant de les jeter aux ordures. Pour le praticien affairé cette tâche peut être rendue plus facile par l'acquisition d'un broyeur simple et peu coûteux que l'on vend dans les magasins d'appareils chirurgicaux.



*The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.*

*Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association Dentaire Canadienne. Vous êtes invités à participer à cette section du Journal.*

### Additional uses for root canal files

I have found that old root canal files may be used to support thiokol impressions for posts and cores. The appropriate size file is chosen by selecting one that fits loosely into the prepared post hole.

The handle is then cut off. The shaft is bent into a loop at the wider end and inserted into the mass of rubber base material which has been spun into the preparation. This gives rigidity to the fine extension of rubber in the post hole and the loop helps to anchor the file in the heavy-bodied mass which overlies the light-bodied material.

Another use for old files is to polish away the cutting surface of the file, producing a smooth shaft. This shaft makes an excellent plugger.

Mark Lazare, DDS  
612 St. John's Rd  
Pointe Claire 720, Que

### Convention expenses in computation of income tax

We are receiving many queries regarding the deductions for convention expenses that are eligible under the new income tax regulations.

Item 20 (10) of the new Income Tax Act states in part "... there may be deducted in computing a taxpayer's income for a taxation year from a business an amount paid by the taxpayer in the year as or on account of expenses incurred by him in attending, in connection with the business, not more than two conventions held during the year by a business or professional organization at a location that may reasonably be regarded as consistent with the territorial scope of that organization."

There has, therefore, been no change in the number of allowable conventions. To be deductible, however, expenses must be reasonable in the circumstances and must have been incurred in attending a convention within the geographic boundaries of the sponsoring organization. For example, reasonable expenses incurred by a CDA member in attending a CDA convention in Canada would be deductible. If the convention was held outside Canadian boundaries, say in Bermuda, the expenses would not be deductible.

### FDI meetings

What about expenses incurred in attending meetings of the Fédération Dentaire Internationale? In order to be sure of the regulations with respect to the international meetings, Doctor Bob Currie of London, Ont, who is organizing group travel arrangements to the FDI Congress in Mexico City in October of this year and to the international meeting in Sydney, Australia, in 1973, has asked the Department of National Revenue to rule specifically on these meetings.

The official reply from the Director of Technical Interpretations Division, Department of National Revenue is as follows: "After examining the excerpts of the Constitution of this organization (FDI) we have concluded that it qualifies as an international organization. Consequently, Australia and Mexico are acceptable locations for conventions of this organization for purposes of the deduction under subsection 20(10) of the Income Tax Act."

The government's reply also stated that the policy regarding the deduction of costs of travelling to conventions is being re-examined. It further suggests that where a trip combines a holiday with attendance at a convention, the travelling expenses incurred by the taxpayer should be apportioned on some reasonable basis yet to be determined.

W. G. McIntosh, DDS



## Students want representation on Examining Board

Dental students should be represented on the National Dental Examining Board of Canada.

This was the stand taken in one of the major resolutions approved at the third annual Canadian Dental Students' Conference held in Winnipeg last October 20 to 23.

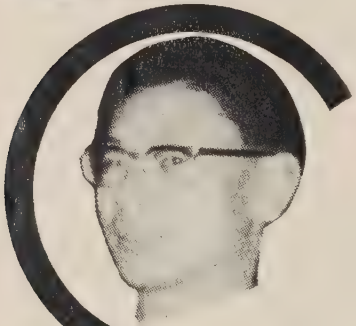
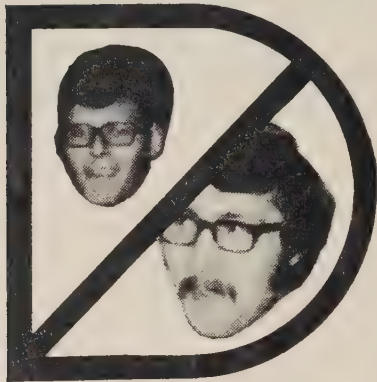
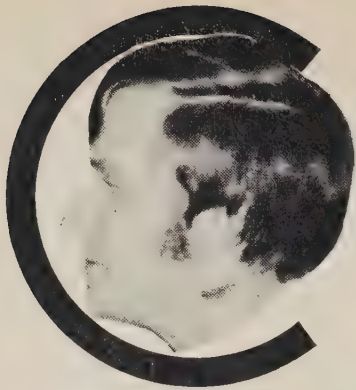
In drafting this resolution, delegates noted that decisions made by the Examining Board directly affect graduating dental students and that the Board is almost wholly supported by student licensing fees. The recommendation proposes that student representation be sought and that the representative be elected at the annual students' conference.

### Sponsored by Council on Education

The Manitoba Dental Association and the University of Manitoba's Faculty of Dentistry hosted this 1971 meeting which was sponsored by the CDA Council on Education and funded by the Canadian Fund for Dental Education. Gary Cooper of the University of Western Ontario served as conference chairman.

Representatives from every Canadian dental school — with the single exception of Laval University which had only enrolled its first class in September 1971 —

Representatives from dental schools across Canada met in Winnipeg last October for the third annual Canadian Dental Students Conference. Pictured at left (top to bottom) are: Gary Cooper, conference chairman, University of Western Ontario; Hubert Gaucher, University of Montreal and Mike Hateley, University of Western Ontario; Edwin Yen, McGill University; Mel Gattinger, University of Saskatchewan; Wayne Peace, University of British Columbia; Ken McLeod, University of Alberta; and Kevin Roach, University of Toronto. The two delegates not shown in these pictures are Doug Trimble, University of Manitoba and Donald Fraser, Dalhousie University.





attended the conference. They included: Wayne Peace, University of British Columbia; Ken MacLeod, University of Alberta; Mel Gattinger, University of Saskatchewan; Doug Trimble, University of Manitoba; Mike Hateley, University of Western Ontario; Kevin Roach, University of Toronto; Hubert Gaucher, University of Montreal; Edwin Yen, McGill University; and Donald Fraser, Dalhousie University.

Of the five resolutions adopted at the conference, two concerned the National Dental Examining Board. One has already been discussed; the other calls for the Board to consider postponing the deadline for payment of the \$200 student licensing fee until January 31 of the year following graduation. It was noted that the Board's improved financial status would make this a feasible consideration and that postponing the fee deadline would ease the financial strain on graduating students.

### **A year of progress**

The general theme for this third annual conference was the delivery of dental services. Business sessions, which occupied the major portion of each day, included a report on the second students' conference held in October 1970. In this report, Gary Cooper outlined the recommendations made at CDSC 2 which had been implemented during the past year. These included:

1. Student table clinics being sponsored at the CDA convention with delegates from all Canadian dental schools participating;

2. Daily evaluation grades being made available to students in clinics more frequently and in more schools than in the past;

3. As of September 1972, each first year dental student will receive a current complimentary issue of the *Journal of the Canadian Dental Association*. Delegates to the second students' conference felt that the Journal was one of the major reasons students join the CDA;

4. Each representative to the annual students' conference is now elected by the entire student body of his school, thus giving him effective representation. He is also in his third year of undergraduate studies, lending continuity to the CDA student membership program in his respective institution; and

5. The chairman of the Canadian Dental Students' Conference is now a member of the CDA Council on Education's Student Membership Committee.

Mr. Cooper also reported the highlights of the Association's 1971 Board of Governors meeting. This marked the first time a non-voting student representative was present at the annual meeting of the CDA Board.

### **Student clinic program**

Another resolution approved by the delegates to CDSC 3 calls for an increase in the number of student clinicians sponsored for participation in the table clinic program at the CDA annual convention. The motion requests that two students from each faculty of dentis-

try in Canada be sponsored for the program with the three winners in each of the two categories — scientific and clinical application — being sponsored as the Canadian representatives to the American Dental Association's student table clinic program.

### **War Memorial Awards Essay Competition**

The fourth resolution approved by conference delegates was prompted by the steady decrease in interest and participation in the annual War Memorial Awards Essay Competition. It recommends that funds earmarked for the War Memorial Awards Essay Competition be made available for resource persons and research projects in the general context of the annual Canadian Dental Students' Conference, commencing at a future date deemed appropriate by the Board of Governors of the Canadian Dental Association.

The final resolution dealt with the election of CDA conference delegates. It called for the various dental students' societies to elect their representative to the annual conference before April 30 of each academic year and to forward the delegate's name to the Student Membership Committee immediately after election.

### **CDA student membership program**

One of the major topics of discussion during the business sessions centered on the problems of stimulating student interest in the CDA. It was pointed out that, as of October 19, 1971, 32 per cent of all Canadian dental students were active members of the CDA, as compared with 33.3 per cent in 1970 and 29.7 per cent in 1969 at the same date.

Delegates noted that during the past year a new brochure had been made available to students outlining the many advantages of membership in the national association. However, the general consensus was that the Journal was still the main drawing card. It was agreed that emphasis should be placed on the fact that students' views are now being presented and heard at the CDA Board of Governors meetings. This, hopefully, would encourage students to feel more a part of the Association.

Edwin Yen, the McGill representative, mentioned that the dental student in Quebec is often preoccupied with matters of the provincial board, since he is required to take exams set by the provincial board if he wishes to practise in Quebec. Mr. Yen feels this situation is a possible drawback in efforts to interest Quebec students in the CDA.

Another problem area cited concerned the numerous organizations and interests competing for the attention of students at a dental school. Many of these seem to have more direct impact on student life than does the CDA. This introduced the point that current decisions of the CDA would directly affect future practice patterns and thus were of great significance to both present and future interests of students.

Representatives decided to stress five main points to colleagues at their respective institutions:

1. The benefits of the CDA insurance program are available only to student members;



2. The annual dental students' conference, to which student members could be elected as delegates, is an effective vehicle whereby student views can be heard and acted upon;

3. The student representative on the CDA Board of Governors has a unique opportunity to discuss and bring forward recommendations of Canadian dental students at a national level;

4. Student views would be welcomed by the Editor of the Journal and given the same consideration as submissions from members of the profession; and

5. The student clinic program offered at the CDA national convention is open to clinicians who are members of the CDA.

### Delivery of dental services

P. E. Currie, chairman of the Canadian Dental Association's Council on Dental Services, spoke to delegates on the past, present and future ramifications of the delivery of dental services as they relate to the student, as a student and as a future practitioner.

In a dental school the student's main concern is how long it will take him to complete the comprehensive treatment plan outlined for his patient. The element of choice is virtually eliminated for the patient; he must accept the plan as outlined if he is to be treated at the reduced fees offered by the school.

Doctor Currie pointed out that the situation in private practice is quite different. Treatment would probably be spread over a period of years to the advantage of both the patient and the practitioner. He explained that the concept of treatment accepted in the school tends to give students an unrealistic attitude toward treatment and makes the transition to concepts prevalent in private practice a difficult one.

Changes in future delivery of services were discussed as they related to the establishment of a practice. Special emphasis was placed on recent or current studies in the area of increased utilization of auxiliary personnel, such as: the Wells Committee report; the report and recommendations of the Manitoba Dental Association Auxiliaries Committee, December 1970; the Prince Edward Island study on expanded duties of auxiliaries; and the program of training auxiliaries for expanded duties in British Columbia.

Results of these studies will undoubtedly affect future methods of practice and Doctor Currie advised graduating dental students to keep these studies in mind when they set up practice and make decisions on such matters as: amount of office space required; type of equipment purchased or leased; type of practice, whether solo or group (with large numbers of auxiliaries, it would become more difficult to operate a solo practice); and the number of auxiliaries to be hired and how they can be effectively utilized.

Conference delegates had an opportunity to observe first hand a departure from the traditional concepts of delivering dental services when they visited the Assiniboine Clinic on the outskirts of Winnipeg. The invitation was extended by Walker Shortill and his associates at the clinic. Students were given a complete tour of the building along with a detailed description of how the clinic operates.

### Trends in dental education

Sessions dealing with educational matters touched on a wide range of topics. Student evaluation was discussed and gave rise to such questions as: How do you define "satisfactory" performance? What type of professional does each school wish to graduate and who decides this? Should there be many small schools throughout Canada or two or three large ones?

Large schools could have the advantage of promoting more meaningful research in curriculum development and evaluation. One representative suggested that a national standard could be developed for each school to follow with regard to examinations. However, it was felt that this would eliminate the creativity afforded by a number of schools operating independently.

K. J. Paynter, dean of the College of Dentistry at the University of Saskatchewan, addressed delegates on the subject of curriculum development in dental education. He explained that, in a new school, the program is frequently the result of an amalgamation of the curricula of several other schools, with special emphasis being placed on the number of hours that these other schools have set aside for each course. Because of this, he noted, most of the so-called new curricula are simply a reshuffled version of several old ones. In addition, the amount of research devoted to evaluating any given system is either scarce or non-existent.

Although the main objective in a university-based professional school is to broaden the outlook of the students, delegates felt that all too often the focus seemed to be on one small technical problem; that the search for broader concepts leading to new techniques, ideas and, ultimately, professional progress, never seems to get off the ground.

### National Dental Examining Board

D. B. Proctor, registrar and vice-president of the National Dental Examining Board of Canada, also attended the students' conference and discussed the history and functions of the NDEB. He explained that since the 1970 CDA meeting in Winnipeg the Board has had representation on the CDA Council on Education and has participated in accreditation surveys across the country. As a result, the NDEB certificate is now offered, without examination, to graduates of all accredited Canadian dental schools. The fee for the certificate is \$200 and entitles the recipient to practise in any province subject to provincial licensing requirements.

Doctor Proctor outlined the future role of the Examining Board as consisting of four main functions:

1. Maintaining educational standards through participation in the Canadian Dental Association's accreditation activities so that examinations for certification of Canadian graduates will be unnecessary;

2. Maintaining an examining facility for Canadian and American graduates who do not have a certificate but find they want or need one;

3. Maintaining an examining facility for foreign dentists; and

4. Negotiating for a system of portability for specialists and dental hygienists.



## The Association

### Doctor Simard new associate editor

Paul Simard, Lévis, Que., has been appointed associate editor of the *Journal of the Canadian Dental Association*, succeeding M. P. Tenenbaum who resigned late last year.

Doctor Simard earned a DDS from the Université de Montréal in 1944. Fourteen years later he obtained a diploma in dental public health from that university's School of Hygiene. He is presently secretary at the School of Dentistry, Laval University, Quebec City.

Doctor Simard has been active in various provincial, national and international dental organizations. He was founding editor of the *Quebec Dental Journal* and is an honorary member of the Quebec Dental Surgeons Association.

## International Items

### Clinical program announced for Mexico FDI Congress in October

Details of the scientific program have been announced for the Fifteenth World Dental Congress of the Fédération Dentaire Internationale in Mexico City October 22-27.

Five plenary sessions will be devoted to the following themes: prevention of caries, prevention of periodontal diseases, prevention in relation to restorative and prosthetic dentistry, prevention of malocclusion and dentofacial anomalies, and the role of nutrition in preventive dentistry.

Other clinical presentations will deal with orthodontics, computers and cybernetics, alveolar reabsorption, periodontics, social sciences, implantology,

the future of the dental profession, and emotional repercussions on the patient.

A registration or enrolment fee is required from those attending. To obtain additional information, contact the Fifteenth World Dental Congress, c/o Organizing Committee, Ezequiel Montes No. 92, Mexico City 4, DF, Mexico.

### Begg orthodontic group to meet in Vancouver

The annual meeting of the Begg Orthodontic Study Club of the Pacific will be held at the Bayshore Inn, Vancouver, July 7-8. The program will feature R. A. Rocke of the Kesling and Rocke Orthodontic Group, Indiana.

For further information, contact S. R. Kirson, Suite 370, 1425 Marine Drive, West Vancouver, BC.

### Canadians to participate in Las Vegas prosthodontic congress

Three Canadian dentists will participate in the First International Prosthodontic Congress at Las Vegas October 26-28, it has been announced.

G. A. Zarb, Toronto, will discuss "The effects of removable prosthesis on the oral tissues - removable partial dentures."

Jacques Fiset, Montreal, will describe "Different concepts utilized in the treatment of terminal dentitions."

Donald Kepron, also of Montreal, will deal with "Considerations of mandibular motions in prosthodontics."

The congress, to be held at the Las Vegas Hilton Hotel, is sponsored by the Federation of Prosthodontic Organizations which includes the Canadian Academy of Prosthodontics. The meeting is timed to follow the prosthetic portion of the Fédération Dentaire Internationale World Dental Congress in Mexico City and precede the annual session of the American Dental Association in San Francisco.

Advance registration fees are \$30 until September 15 and \$35 thereafter. There is no registration fee for members

of organizations affiliated with the Federation of Prosthodontic Organizations.

For further information, contact the International Prosthodontic Congress, c/o The Julian J. Jackson Agency, 919 North Michigan Ave, Chicago, Ill 60611, USA.

### Oral biology conference set for October

The 29th annual meeting of the American Institute of Oral Biology will convene at the Spa Hotel, Palm Springs, California, October 13-17, it has been announced.

Members of the faculty will comprise Jennifer Jowsey, director, orthopaedic research, Mayo Clinic, Rochester, Minnesota; Melvin Moss, dean, School of Dental and Oral Surgery, Columbia University, New York; Emil Steinhäuser, chairman of the Department of Oral and Maxillofacial Surgery, Cantonal Hospital, Lucerne, Switzerland; Paul Terasaki, professor of surgery, University of California at Los Angeles School of Medicine, Los Angeles; and Joseph Volker, president of the University of Alabama, Birmingham, Alabama.

For further information and application forms, please contact J. A. Ducasse, PO Box 897, Glendora, California 91740, USA.

### Canadians invited to Paris paedodontic meeting in 1973

Canadian dentists have been invited to the Fourth International Symposium of Child Dental Health in Paris, France. The meeting will be held July 10-13, 1973, at the New Faculty of Medicine, 45 rue des Saints-Pères, 75 Paris 6.

Principal themes of the conference are: the prevention and prophylactic treatment of dental caries in children, problems of dental eruption, and injuries to the teeth and jaws of children.

Official congress languages will be French and English. Simultaneous translation will be provided in both languages.

For further information, contact G. Château, Secrétariat, Société Française de Pédiodontie, 33 rue Poissonnière, 75 Paris 2, France.

## Dental Organizations

### Lay and auxiliary representation on new Manitoba dental board

Three new members were recently appointed to the Board of Directors of the



Manitoba Dental Association pursuant to the province's new dental act. They are W. V. Grenkow of Winnipeg; Mrs. J. Berger, a Winnipeg dental hygienist; and Mr. S. McPhail of Anola, Manitoba.

The Manitoba association is believed to be the first in Canada to include a member of the public as well as a representative of auxiliary disciplines on its Board of Directors.

### Doctor Rosen heads endodontists



Samuel Rosen

Samuel Rosen of Hamilton, Ont., was installed as president of the Canadian Academy of Endodontics when that organization held its annual meeting in Montreal April 13-16 in conjunction with the American Association of Endodontists. He succeeds Isadore Wolch of Winnipeg. E. C. Aho, Toronto, is president-elect and P. R. Dow, Vancouver, continues as secretary-treasurer.

This occasion marked the first time the AAE has convened outside the United States and a record attendance was on hand to participate in the well organized program.

The next meeting of the CAE will be held in October 1973 in conjunction with the annual meeting of the Canadian Dental Association in Vancouver.

## Dental Education

### Doctor Marshall to head endodontics department at Oregon university

F. James Marshall, a native of Vancouver, has been named chairman of the Department of Endodontics at the University of Oregon Dental School.

Doctor Marshall goes to Oregon from Ohio State University where he has been head of the endodontic department for five years. Previously he taught operative dentistry at the University of Pittsburgh for two years, and was on the dental faculty, teaching endodontics and oral histology, at the University of Manitoba for six years. Doctor Marshall

also has been a member of the dental faculty at the University of Illinois.

### Doctor Yeo promoted at UBC



D. J. Yeo

D. J. Yeo, Vancouver, has been named assistant dean in the Faculty of Dentistry, University of British Columbia.

Doctor Yeo, who graduated from the University of Toronto in 1951, earned a master of public health degree from the University of Michigan in 1953. Besides his new appointment, Doctor Yeo continues in his capacity as professor and head of the UBC Department of Public and Community Dental Health.

### Three year dental schools predicted

An American educator told participants at the American Association of Dental Schools meeting March 20-23 in Las Vegas that, in the future, dental students will likely be graduated from dental school in three years instead of the conventional four years because of greater flexibility of education programs and individualized instruction.

Sheldon Rovin of the University of Kentucky noted that some dental schools have already initiated three year programs for selected students.

"Students do not learn by years nor do they learn at the same rate as every other member of their class," he said. "A student should graduate on the basis of demonstrated competency regardless of time, his class-mates or the inconvenience it may cause the instructor," he added.

## Educational opportunities

### Postgraduate education

The Faculty of Dentistry of the University of Toronto offers a series of courses leading to specialist certification in dental public health, oral surgery and anaesthesia, orthodontics, paedodontics and periodontics. A course in anaesthesia as it applies to dentistry is also available.

For further details, please contact G. S. Beagrie, Assistant Director, Division of Postgraduate Dental Education, Faculty of Dentistry, University of Toronto, 124 Edward St, Toronto 101, Ont.

### Graduate education

The Faculty of Dentistry of the University of Toronto offers programs of education and research leading to the master of science in dentistry and PhD degrees in the biological and clinical sciences related to dentistry.

Information for graduate programs in the biological sciences may be obtained from A. R. Ten Cate, Faculty of Dentistry, University of Toronto, 124 Edward St, Toronto 101, Ont. For details of clinical sciences, please write to G. S. Beagrie at the same address.

Application forms for both programs may be obtained from the School of Graduate Studies, University of Toronto, 65 St. George St, Toronto 5, Ont.

## Economics

### Nova Scotia mechanics bill defeated

Nova Scotia mechanics lost their bid to gain legal recognition when the province's legislature voted April 24 against second reading of their bill. It was the second time in three years that the bill has been defeated.

Although 14 of 22 members speaking on the bill supported it in principle and wanted major changes made in the law amendments committee, a free vote on the measure doomed it.

### Ontario program to test "expanded duty" hygienists

Dental hygienists will have their roles expanded in private dental practices, including the placing of fillings in teeth prepared by the dentist, in a pilot project sponsored by the Ontario Dental Association.

The two year study will test the team approach to dental care with expanded roles for dental hygienists and dental assistants.

Sixteen dental offices are involved in the program, which is financed by a \$125,721 grant from the Ontario Health Resources Development Plan.

In eight of the offices, hygienists and dental assistants will carry out certain procedures previously handled only by



dentists. Their work will be compared with eight practices using auxiliaries with present training.

Twelve hygienists and 12 assistants will take special summer courses at the Faculty of Dentistry, University of Toronto, and the George Brown Community College, Toronto, to prepare them for the increased responsibilities.

The hygienists will be trained to place and remove rubber dam and matrix bands as well as fill teeth previously prepared by the dentist. The as-

sistants will take on some of the hygienist's duties, including patient education, exposure of radiographs and application of topical fluoride solutions. The dentist will remain responsible for all work done in his office.

R. L. Ellis of the University of Toronto Faculty of Dentistry, who is chairman of the ODA project, hopes to have statistics at the end of two years showing whether a dentist can treat more patients when his hygienist and assistant do more of these tasks.

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## FOURTH NATIONAL SURVEY CHARTS PATTERNS OF PRACTICE

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### 38 per cent of dentists reported as "too busy"

In the 1968 survey of dental practice, each dentist was asked which of the following statements best described the busyness of his private practice:

1. Too busy to treat all those requesting appointments.
2. Too busy only at certain times of the day or year.
3. Treated all those requesting appointments, but felt too rushed and/or worked more hours than wished.
4. Provided treatment for all those who requested appointments, and had enough but not too many patients.
5. Did not work at full capacity, but did not wish to accept more patients.
6. Could have taken more patients.

The largest percentage of dentists, 38 per cent, stated they were too busy to treat all those requesting appointments. The next largest group, 23 per cent, was able to provide treatment for all those who requested appointments and had enough, but not too many, patients. Sixteen per cent stated they treated all those requesting appointments but were too rushed or worked longer hours than they wished, while 9 per cent said they could have taken more patients.

Seven per cent claimed they were too busy only at certain times of the day or year, and another 7 per cent said they did not work at full capacity but did not wish to accept more patients.

### Hike in gross income per chairside hour

Gross receipts for each hour the dentist spends at the chairside averaged \$27.84 in 1968, according to the latest survey of dental practice. This is 66 per

cent higher than the corresponding averages reported in the 1963 survey.

However, for each hour spent in private practice — whether at the chairside, in the laboratory, doing charting or administrative work — the average dentist earned a net income of \$12.53. This represents a 58 per cent increase since 1963.

In other words, it costs the patient an average of \$28 for each hour spent with the dentist, but for each hour the dentist works he earns \$12.50, before taxes and personal deductions.

The two-thirds increase in gross earnings per hour is not all borne by the patient. While fee hikes accounted for a portion of the increased gross per hour, increased productivity also provided an important contributing factor.

Gross earnings per chairside hour were highest in Alberta at \$33.26, followed by British Columbia, Saskatchewan and Ontario, all with averages in the \$30 range. Quebec dentists reported the lowest hourly gross, \$21. Net income followed the same pattern ranging from a high of \$15 in Alberta to \$9 in Quebec.

### A case for women's lib?

Women in either full-time dental practice or in full-time practice combined with some part-time salaried work earned incomes comparable to their male colleagues in 1968, according to the survey of dental practice conducted by the Canadian Dental Association recently.

However, there was a difference between the mean and median incomes of male and female dentists in full-time salaried positions. Here, the men's salaries averaged more than \$1,000 a year above the women's.

### Manitoba trains expanded function dental assistants

An educational program to provide one hundred certified dental assistants throughout rural Manitoba is nearing completion this month. The concentrated courses provided upgrading for existing dental assistants working in private practices or the provincial government service.

Organized jointly by the province's Dental Health Services Division, the Manitoba Dental Association and the Manitoba Dental Nurses and Assistants Association, the program developed out of the need to increase preventive dental care and education. It prepared dental assistants to carry out intra-oral functions usually performed by dental hygienists — such as exposing radiographs, prophylaxis, applying topical fluoride solutions and providing oral hygiene instruction.

### Regina anticipates dental care program

A two year course to train auxiliary dental personnel will lead to the introduction of a dental care program for children 12 years of age and under, Saskatchewan Health Minister Walter Smishek announced March 31.

Mr. Smishek, speaking during second reading of an auxiliary personnel education bill which would establish the course, said it is hoped 50 students would enrol in the first class.

"As students from this two year training program graduate, we will introduce our dental care program.

"The dental therapists and other auxiliary dental personnel will be sufficiently trained to provide most preventive dental services and some of the more simple restoration services . . . including filling teeth and extracting teeth in certain circumstances."

### Fluoridation

#### Fluoridated water systems do not retard osteoporosis

Data compiled recently indicate that even though water fluoridated to one part per million provides protection against dental caries, this does not add sufficient fluoride to bones to retard osteoporosis.

Previous studies of residents in communities where natural fluoride in drinking water was four or eight times greater have indicated that osteoporosis was



## YOUR SECURITY

*This is the second of a series of articles on insurance and investment programs available through the dental profession.*

The Canadian and Provincial insurance and retirement savings programs offered to dentists through the profession are tailored to the average dentist for his average needs.

These plans have a strong foundation in that they are operated for the Canadian Dental Association by a dentally-owned corporation, Canadian Dental Service Plans, Inc (CDSPI).

By having this non-profit agency administer the plans, any profits can be used for the benefit of dentistry and any surpluses, along with interest earned on deposits, can be used to expand services, reduce rates or increase benefits. This would not be the case if a private company were administering the plans.

Of those plans available through the Canadian Dental Association, there are four chief sources of responsibility:

1. The CDA Board of Governors. The Board gives final approval to all plans and signs all contracts with the participating insurance companies as carriers. A carrier cannot cancel an individual's policy unless he fails to pay premiums.

2. CDA Council on Insurance and Investment. It makes recommendations to the Board of Governors, deals with the carrier companies and reviews plans constantly to keep them healthy.

3. CDSPI. This non-profit, dentally-controlled corporation administers the plans, collecting premiums from participating dentists and remitting them to the carriers. Individual dentists deal directly with CDSPI (230 St. George St, Toronto) in taking out policies or entering claims for benefits. CDSPI provides the Council with an annual accounting of its operations, and

obtains a yearly performance statement from each participating carrier.

4. The insurance carriers and investment trusts. The carriers underwrite the plans, in return for a percentage of the premium. Commission is paid on disability insurance plans only and at a lower rate than in the case of individual plans. The investment trust operates without a sales commission or front end load, at a commission of 1/24 of 1 per cent of the net asset value per month.

Dentists sometimes find themselves under pressure from salesmen to drop their CDA or ODA plans in favour of private plans. Arguments have been made that our groups can be dropped by the carrier, that rates can go up, or that you can lose your insurance if you are no longer a member of the sponsoring group.

It would be extremely unlikely for an insurance company to withdraw as one of our carriers and there are others waiting to take over. Rates can always change, but participation by more dentists will help keep them down. Arrangements can be made to retain insurance if one leaves to teach, go to another country, or take postgraduate studies.

The CDA Council on Insurance and Investment is urging more dentists to enrol in the Retirement Savings Plan. The Equity Fund supporting this Plan gained more than 31 per cent in five years. A new Guaranteed Fund now planned will be especially attractive to older dentists. For younger dentists not yet in a tax bracket in which a retirement plan offers a substantial tax advantage, they can now invest in an equity fund with a later transfer to the Retirement Savings Plan. RSP Common Stock, meanwhile, offers a simple way to accumulate capital in high taxation years without having to take the personal time, or run the risk of the gamble involved in making personal investments in stocks, property or businesses.

*Next: How much do you need for retirement?*

less prevalent than usual. It was not known whether fluoride at the level of 1 ppm was protective.

American scientists have compared chemical analyses and microscopic studies of specimens of ribs, vertebrae, and abdominal aortas taken from the inhabitants of fluoridated and non-fluoridated areas.

Aside from the fluoride content the investigators found no differences in the bone chemistry and microscopic findings in bones of long time residents of Grand Rapids, Michigan, where the water has been fluoridated at 1 ppm for 26 years, and those who lived in

New York City prior to 1965, when the water contained 0.1 ppm, or in Albany, New York, with a similar low fluoride level. At the 1 ppm level in water, the mature skeleton absorbed and maintained a relatively stable plateau of fluoride averaging 0.15 per cent in the 40-60 age group as compared to somewhat less than 0.1 per cent in bones of New York City or Albany residents.

No more abnormal bone pathology developed in the older age groups who had used fluoridated water at Grand Rapids for up to 20 years than was found in New York City or Albany residents.

## Research

### Starchy diets may contribute to caries

Sucrose has long been considered a major dietary culprit contributing to dental caries, but starchy diets may have to share some of the blame.

Two University of Oregon dental scientists report that *Neisseria*, possibly the second commonest mouth organism, grows well on starch but does not require sugar.



*Neisseria* alone does not cause tooth decay; however, it produces and releases amylopectin, a long-chain repeating molecule or polymer, different from the sticky dextran and levan polymers that plaque-forming streptococci make from sucrose.

While dextran helps bacteria cling to the teeth in plaque, amylopectin can serve as another food source for bacteria to grow on and convert into acids that attack enamel. The investigators report that one of these streptococci grows 50 times as fast on *Neisseria*'s amylopectin as on sugar.

### Hip marrow used to restore lost jawbone

Scientists at the University of Colorado have developed a method for using implants of bone marrow from a patient's hip to restore jawbone loss in periodontal disease.

R. G. Shalhorn, Denver, originator of this highly experimental technique, reports successful results in a number of patients. In all cases observed over a two year period, the bone marrow, when removed from the ilium or crest, showed rapid regeneration in the implant sites.

The iliac transplants can be used in a typical dental office, Shalhorn said. They also eliminate the need for autogenous donor material during periodontal surgery. The result is a simpler dental procedure and less chair time needed for transplant therapy.

Doctor Shalhorn said the hip marrow can be removed in a physician's office or a hospital outpatient clinic. The bone marrow is then either refrigerated if the implantation is delayed for up to one week or frozen if the grafting does not take place for months.

In some cases, he said, the marrow is taken from the patient's hip in the dentist's office and immediately implanted in the jawbone.

### Porous ceramic material may help in bone grafting

American scientists, sponsored by the US Army Institute of Dental Research, have developed a biodegradable porous ceramic that shows promise as an alternative to conventional surgical bone grafting. In extensive animal studies, implantation of the sintered ceramic in a bone defect site has resulted in total restoration of the original bone formation.

The porous material, prepared from various forms of calcium phosphate,

comes in different sizes which surgeons can carve to fit a given bone defect. Much of the attention to date has been focused on the repair of jawbone defects.

Using hundreds of laboratory animal implants at the Walter Reed Army Medical Centre, Washington, the researchers found that the porous ceramic implant is almost completely replaced with new calcified bone within four to six weeks.

They found the bone starts to regenerate through the porous material almost immediately after implantation, as blood and other body fluids penetrate the structure of the ceramic. Microscopically, most of the ceramic particles disappear within six weeks and the bone is completely remodelled after two to three months.

The scientists observed cortical bone, cancellous bone and marrow in the precise locations where these tissues normally occur. The ceramic, composed basically of calcium and phosphorus, degraded completely leaving no foreign materials at the implant site.

The significance of the development, they note, lies in the fact that the ceramic material is only temporary — serving as a bridge for the body to use in filling in its own bone gaps. Once degradation is complete all that remains is the patient's own bone.

The researchers have also tested the use of powdered and granular calcium phosphate for the repair of small bone defects. When the particles are packed into the voids in the bone, a slurry forms with the patient's blood and a solid "filling" is produced. This leads to bone regeneration like that experienced with the solid porous ceramic implants.

Laboratory evaluation indicates that the ceramic slurry concept could be advantageous in fostering regeneration of new bone in patients with advanced periodontal disease.

### CDA Retirement Savings Plan

Unit values of the Canadian Dental Association Retirement Savings Plan stood as follows on April 30:

*Fixed Income Fund* \$12.852;

*Common Stock Fund* \$27.488.

Total assets (market value) of the plan were \$13,225,540.06.

The following portfolio purchases and sales occurred during the preceding month: bought 500 shares Hudson Bay Oil and Gas and \$75,000 Pacific Petroleum convertible debenture 5 per cent

May 1, 1992; sold 6,000 shares Husky Oil and 5,000 shares Maclean-Hunter.

For further information please write to CDA-sponsored Pension and Insurance Plans, 230 St. George St., Toronto 180, Ont.

### Awards and Appointments

Windsor dentist **B. J. Nolan** was elected president of the Ontario Separate School Trustees' Association on April 8.



Israel Kleinberg

**Israel Kleinberg**, professor of oral biology (biochemistry) at the Faculty of Dentistry, University of Manitoba, Winnipeg, was elected a councillor-at-large at the March 23-26 annual meeting of the International Association for Dental Research.

### Deaths

Bergeron, Bernard. 55. Matane, Qué. Université de Montréal, 1944. 27-3-72.

Derkson, William Hardy. 73. Clearbrook, BC. University of Alberta, 1931. 10-4-72. Survived by Eva (wife); Stanley (son); Mrs. Mildred Taylor and Mrs. Ramona Rich (daughters); and two grandsons.

MacIsaac, Stephen George. 76. Glace Bay, NS. Dalhousie University, 1923. 28-3-72. Survived by Doctor Stephen George, Jr., Lionel, Donald and John Lorne (sons); John and Joseph (brothers); and Mrs. A. J. Cyr, Mrs. Frank Haverty and Mrs. John Lamb (sisters).

Nilsen, Arnulf Hilmar. 48. Dinsmore, Sask. Dundee Dental School, Scotland, 1960. Survived by his wife.

Roos, Harrison Charles. 80. Paris, Ont. Royal College of Dental Surgeons of Ontario, 1918. 22-4-72. Survived by Mabel Ellen (wife); Robert (son); and Mrs. E. J. Gallagher (daughter).



## L'Association

### L'ADC offre des cours de perfectionnement enregistrés sur cassette

A partir de ce mois-ci l'Association Dentaire Canadienne mettra à la disposition de ses membres qui souscriront à ce projet un programme d'enseignement permanent enregistré sur cassettes. Ce programme produit pour l'ADC est conçu par Medifacts Ltd d'Ottawa.

Les bandes enregistrées seront distribuées une fois par mois aux dentistes participant à ce programme, et auront une durée de 37 minutes. Chaque cassette traitera de cinq à six sujets concernant directement des aspects importants de la médecine dentaire, en plus de quelques nouvelles. Chaque sujet durera de quatre à six minutes. Des illustrations visant à expliquer les différentes étapes opérationnelles accompagneront les cassettes.

Le coût de ce service est de \$72 par année. On peut aussi se procurer des magnétophones utilisant ces cassettes à des prix très avantageux. Pour de plus amples informations et abonnements écrivez à Medifacts Ltd, 33 Somerset St West, Ottawa, Ont, K2P 0H3.

### Le Dr Simard nommé rédacteur adjoint

Le Dr Paul Simard de Lévis, Qué., vient d'être nommé rédacteur adjoint du *Journal de l'Association Dentaire Canadienne*. Il succède au Dr M. P. Tenenbaum qui a donné sa démission vers la fin de l'an dernier.

Le Dr Simard est né à Ste-Rosaire, Cté Bagot. Il fit ses études secondaires au Collège de Lévis et reçut son diplôme en chirurgie dentaire à l'Université de Montréal, en 1944. Quatorze ans plus tard il obtint son diplôme en hygiène dentaire publique à l'Ecole d'hygiène

de cette même université. Il est actuellement secrétaire de l'Ecole de médecine dentaire de l'Université Laval à Québec.

Le Dr Simard a joué un rôle actif dans diverses organisations dentaires de la province de Québec. Il est également membre de l'Association Dentaire Canadienne et de la Fédération dentaire internationale.

Le Dr Simard fut le premier rédacteur du *Journal dentaire du Québec*. Il a été nommé premier membre honoraire de l'Association des chirurgiens-dentistes du Québec pour sa participation active à la publication de ce journal, et pour le travail qu'il a effectué dans plusieurs domaines de la profession.



Le Docteur Paul Simard

## Chronique internationale

### Programme scientifique du Congrès de la FDI à Mexico en octobre

On connaît maintenant les détails du programme scientifique qui sera présenté au Quinzième congrès dentaire mondial de la Fédération Dentaire Internationale qui aura lieu à Mexico du 22 au 27 octobre.

Cinq sessions plénières seront consacrées aux thèmes suivants: la prévention de la carie, la prévention des

maladies périodentaires, la prévention en relation avec la dentisterie restauratrice et la prosthodontie, la prévention de la malocclusion et les anomalies dentofaciales, et le rôle de l'alimentation en dentisterie préventive.

Les autres présentations cliniques traiteront d'orthodontie, d'ordinateurs et de la cybernétique, de la réabsorption alvéolaire, de la périodontie, des sciences sociales, de l'implantologie, de l'avenir de la profession dentaire, et des répercussions émotives éprouvées par le patient.

Ceux qui veulent participer à ce congrès doivent payer les frais d'inscription. Pour obtenir des renseignements supplémentaires, écrivez au Quinzième congrès dentaire mondial, Comité d'organisation, Ezequiel Montes, No 92, Mexico 4, DF Mexico.

## Les organismes dentaires

### Représentation du public et des auxiliaires au Bureau manitobain

Trois nouveaux membres ont récemment été nommés au Bureau de Direction de l'Association dentaire du Manitoba, et ce en accord avec la nouvelle loi dentaire de cette province. Il s'agit de W. V. Grenkow, de Winnipeg; Mme J. Borger, une hygiéniste dentaire de Winnipeg; et de M. S. McPhail, d'Anola, Manitoba.

L'association du Manitoba est probablement la première au Canada à recevoir au Bureau de Direction un membre du public ainsi qu'un représentant des disciplines auxiliaires.

## L'économie

### Adhésion volontaire des dentistes hors-Québec au régime québécois

Les dentistes qui exercent leur profession dans des régions adjacentes au Québec et qui traitent des patients québécois peuvent participer au régime de l'assurance-maladie du Québec en tant qu'adhérents volontaires au régime.

Ils peuvent réclamer directement de la Régie et obtenir paiement de leur relevé d'honoraires pour services rendus à leurs patients québécois. Ils doivent néanmoins réclamer en fonction des barèmes préalablement négociés entre le ministère des Affaires sociales et les associations professionnelles re-



présentant les dentistes du Québec. Ils ne peuvent donc réclamer aucune autre rémunération supplémentaire que celle qui aurait été payée par la Régie si les services assurés l'avaient été, au Québec, par un dentiste participant.

Pour devenir adhérent volontaire au Régime de l'assurance-maladie du Québec le dentiste devrait écrire au Service d'inscription professionnelle, Régie de l'assurance-maladie du Québec, Québec, Qué.

### **Eches pour les denturologistes en Nouvelle-Ecosse**

Les denturologistes de la Nouvelle-Ecosse ont essuyé un échec lorsque le rapport intérimaire du groupe d'étude du Conseil de la Santé de la Nouvelle-Ecosse sur les soins dentaires a recommandé de ne pas rendre leurs opérations légales.

Le rapport rendu public le 24 mars conteste un projet de loi présenté par un député qui aurait ouvert le domaine des prothèses aux mécaniciens dentaires. Le rapport prétend que le projet de loi "allait bien au-delà de ce qu'il était nécessaire d'accorder pour le bien commun".

Il suggère que les hygiénistes dentaires, plutôt que les mécaniciens, constituent le groupe le plus à même d'ajuster les prothèses car, selon le président du groupe d'étude, M. F. B. Wickwire, les hygiénistes dentaires ont une formation plus adéquate en ce qui concerne l'aspect biologique du travail; les mécaniciens dentaires n'en ont pas".

### **"Cessez de faire des profits sur les prothèses" d'avertir le ministre de la Santé de l'Ontario**

Le ministre de la santé de l'Ontario, le Dr Richard Potter, a déclaré que les dentistes devraient cesser de faire des profits sur les prothèses qu'ils fournissent à leurs patients. Ils peuvent se faire payer pour leurs services tels que la pose ou l'ajustement de la prothèse mais ils devraient fournir l'appareil fabriqué par les techniciens dentaires au prix coûtant à leurs patients.

On doit fournir des dentiers aux gens "au plus bas prix possible" a-t-il déclaré. "Nous voulons qu'il en soit ainsi et il en sera ainsi".

Le ministre parlait ainsi lors d'un forum sur les soins dentaires organisé par le *Toronto Star* le 14 mars. Environ 300 personnes participaient à ce forum qui est le 20e d'une série de rencontres publiques qui se sont déroulées au cours des trois dernières années et qui donnent la chance au public de discuter de problèmes importants avec des experts.

## **LA QUATRIEME ENQUETE NATIONALE DE L'EXERCICE DENTAIRE AU CANADA**

### **La majorité des dentistes se guide sur les barèmes provinciaux d'honoraires**

Les différents barèmes d'honoraires préparés par les associations provinciales à l'intention des dentistes ont pour but de guider ces derniers à établir le coût de tel ou tel autre service offert. Dans le questionnaire envoyé à l'occasion de l'enquête de 1968 sur la profession dentaire, on demanda aux dentistes s'ils se servaient de ces barèmes pour établir leurs honoraires, ou sinon, s'ils fixaient le montant en fonction du service rendu ou simplement à l'heure.

Sur l'ensemble des dentistes ayant répondu à l'enquête, 57 p.c. déclarèrent utiliser le barème recommandé par leur association provinciale. Des 43 p.c. qui n'utilisaient pas ce barème 28 p.c. basaient leurs honoraires sur les services offerts, 9 p.c. calculaient à l'heure et 6 p.c. utilisaient une combinaison des deux méthodes.

Le pourcentage de dentistes basant leurs honoraires sur les barèmes établis par leur association provinciale fut le plus élevé dans les provinces de l'Ouest, 76 p.c. en Alberta, 70 p.c. en Colombie-Britannique et 68 p.c. au Manitoba et en Saskatchewan. Entre 56 et 67 p.c. des dentistes des Provinces atlantiques utilisaient les barèmes de leurs associations, mais en Ontario et au Québec seulement 51 p.c. et 44 p.c. des dentistes déclarèrent baser leurs honoraires sur l'échelle émise par leur association provinciale.

### **L'enquête indique une légère tendance seulement à s'écarter du travail solitaire**

Pendant les cinq ans (de 1963 à 1968) que couvrent l'enquête sur la profession dentaire menée par l'ADC, on put noter une légère tendance à l'abandon de la pratique en solitaire pour un travail en association ou à coûts partagés.

L'enquête de 1968 révéla que 82 p.c. des dentistes au Canada travaillaient seuls, c'est-à-dire véritablement seuls ou avec des associés recevant un salaire ou une commission et ne partageant pas leurs frais. Si ces chiffres indiquent une majorité confortable, ils indiquent aussi une baisse de 4 p.c. sur le total des dentistes travaillant seuls en 1963.

Un autre 14 p.c. des dentistes ayant fait l'objet de l'enquête n'avaient pas d'associés mais partageaient les frais de bureau ainsi que le salaire des employés. Les derniers 4 p.c. étaient en association complète. Ces chiffres in-

diquent une hausse de 3 p.c. dans le nombre de dentistes partageant leurs frais et une hausse de 1 p.c. pour ceux qui étaient en associations complètes.

Des 4 p.c. en association complète plus de la moitié travaillaient avec un autre dentiste, un quart faisaient partie d'un groupe de trois et seulement un cinquième étaient en association avec quatre à sept dentistes.

Cette nouvelle orientation vers des arrangements de frais partagés varia grandement d'une province à l'autre. Tous les dentistes de Terre-Neuve et de l'Île-du-Prince-Édouard ayant participé à l'enquête de 1968 déclarèrent travailler seuls. La Saskatchewan venait ensuite avec 89 p.c. pendant que 67 p.c. seulement des dentistes du Manitoba et 75 p.c. de ceux de l'Alberta affirmèrent travailler seuls. Le pourcentage dans les autres provinces approchait la moyenne canadienne de 82 p.c.

Au Manitoba 29 p.c. des dentistes partageaient leurs frais, suivis par 18 p.c. en Nouvelle-Ecosse et 17 p.c. en Alberta. Les autres provinces étaient proches de la moyenne nationale de 14 p.c. à l'exception de la Saskatchewan où 7 p.c. seulement des dentistes déclarèrent partager leurs frais.

La Nouvelle-Ecosse fut la seule des Provinces atlantiques où les dentistes affirmèrent travailler en association. C'est en Alberta que l'on retrouva la proportion la plus élevée dans ce domaine avec 9 p.c. comparé à 3 ou 4 p.c. dans les autres provinces. De plus ces associations semblaient grouper plus de dentistes en Alberta.

Les facteurs qui semblèrent favoriser la pratique privée en solitaire comprennent l'âge du dentiste ainsi que le lieu où il exerce.

Dans les grands centres, travailler seul est moins fréquent (villes de plus de 100,000) et ce genre de mode de travail semble plaire davantage aux praticiens plus âgés. Le pourcentage le plus élevé de dentistes partageant leurs frais fut découvert chez les praticiens plus âgés. Le pourcentage le plus élevé de dentistes partageant leurs frais fut découvert chez les praticiens dont l'âge n'atteignait pas 25 ans, pendant que le travail en solitaire semblait être populaire chez les dentistes dont l'âge se situait aux alentours de 50 ans.

Le genre de pratique fut aussi un facteur important dans l'orientation de cette pratique. Un total de 83 p.c. d'omnipraticiens travaillaient seuls, 14 p.c. partageaient leurs coûts et 3.5 p.c. étaient en association.

Les chiffres concernant les spécialistes sont tout à fait différents, seulement 72 p.c. d'entre eux travaillent seuls, 19 p.c. partagent leurs frais et 9 p.c. forment des associations.



## VOTRE SÉCURITÉ

*Voici le deuxième article d'une série portant sur le programme d'assurances et d'investissements commandités par la profession dentaire.*

Les programmes canadiens et provinciaux d'assurances et d'épargne-retraite qui sont offerts aux dentistes par l'entremise de la profession sont préparés pour le dentiste moyen avec des besoins moyens.

Ces régimes ont une base solide parce qu'ils fonctionnent sous l'égide de l'Association Dentaire Canadienne par l'entremise d'une corporation dont la profession est le propriétaire, le Canadian Dental Service Plans, Inc. (CDSPI).

Parce que cette agence sans but lucratif administre les régimes, tous les profits sont employés pour le bénéfice de la profession dentaire et tout surplus, de même que les intérêts amassés sur les dépôts, sont utilisés pour agrandir les services, réduire les primes ou augmenter les bénéfices. Ceci ne serait pas le cas si une compagnie privée administrait les régimes.

Il existe quatre sources principales de responsabilité en ce qui concerne les régimes qui sont disponibles par l'entremise de l'Association Dentaire Canadienne:

1. Le Conseil des Gouverneurs de l'ADC. Le Conseil donne son approbation à tous les régimes et signe tous les contrats avec la participation des compagnies d'assurance qui les souscrivent. Ces compagnies ne peuvent pas canceler la police d'un individu à moins qu'il n'ait pas payé les primes.

2. Le Conseil des assurances et des investissements de l'ADC. Le Conseil fait des recommandations au Conseil des Gouverneurs, fait affaire avec les compagnies d'assurance et maintient une révision constante des régimes.

3. Le CDSPI. Cette corporation sans but lucratif, contrôlée par la profession, collecte les primes des dentistes participants et les transmet aux compagnies. Le dentiste fait affaire directement avec le CDSPI (au 230 rue St-George à Toronto) lorsqu'il achète des assurances, ou lorsqu'il réclame des bénéfices. Le CDSPI présente au Conseil une comptabilité annuelle de ses opérations, et obtient un état de compte annuel de chaque compagnie d'assurance.

4. Les compagnies d'assurances et de fiducie. Les compagnies d'assurances souscrivent les régimes, et en retour perçoivent un pourcentage de la prime. Une commission n'est payée que dans les cas d'assurance-invalidité seulement et à un taux moindre que dans le cas de régimes individuels. La compagnie de fiducie opère sans commission pour ses ventes et sans charges au début, mais prend une commission mensuelle de 1/24 d'un pour cent de la valeur nette de l'actif.

Le dentiste doit souvent subir des pressions de certains vendeurs qui essayent de le persuader de laisser tomber les régimes de l'ADC en faveur d'un régime privé. Certains prétendent que nos groupes peuvent être éliminés par les compagnies d'assurance, que les primes peuvent augmenter, ou que vous pouvez perdre votre assurance si vous n'appartenez plus au groupe qui commande les assurances.

Il est très peu probable qu'une compagnie d'assurance nous laisse tomber, et il y en a beaucoup d'autres d'ailleurs qui n'attendent que l'occasion pour s'embarquer avec nous. Les taux peuvent toujours changer, mais la participation d'un plus grand nombre de dentistes aide toujours à les réduire. On peut faire des arrangements pour garder ses assurances si l'on quitte pour enseigner, pour aller vivre dans un autre pays, ou pour faire des études post-universitaires.

Le Conseil des assurances et des investissements de l'ADC veut encourager plus de dentistes à s'inscrire au Régime d'épargne-retraite. Le Fonds d'actions de ce régime a augmenté de plus de 31 p.c. en cinq ans. Un nouveau Fonds garanti est prévu qui attirera particulièrement les dentistes plus âgés. Les dentistes plus jeunes qui n'ont pas encore atteint le niveau d'impôts où un régime de retraite offre des avantages fiscaux considérables, peuvent maintenant investir dans un fonds d'actions et le transférer plus tard au Régime d'épargne-retraite. Le Fonds d'actions ordinaires du RER offre, en attendant, un moyen simple d'accumuler du capital durant les années où les impôts sont élevés sans avoir à dépenser trop de son temps, ou de prendre les risques d'un investissement personnel dans des actions, des propriétés ou des affaires.

*Prochain numéro: De combien a-t-on besoin pour prendre sa retraite?*

### Le Manitoba forme des assistantes dentaires aux fonctions élargies

Un programme d'enseignement visant à former cent assistantes dentaires diplômées qui travailleront surtout dans les régions rurales du Manitoba est sur le point de prendre fin ce mois-ci.

Ces cours intensifs avaient permis aux assistantes dentaires en service dans des cabinets privés ou au service du gouvernement provincial de parfaire

leur formation. Organisé conjointement par la Division des services de la santé dentaire, l'Association dentaire du Manitoba et l'Association des infirmières et assistantes dentaires du Manitoba, ce programme devrait augmenter la disponibilité des soins dentaires préventifs ainsi que de l'éducation à l'hygiène dentaire. Il prépare ces assistantes dentaires à donner certains soins dans la bouche effectués d'ordinaire par les hygiénistes dentaires – prendre des radiographies, la prophylaxie, l'application

topique de fluorure, ainsi que les instructions à l'hygiène buccale.

### Régina prévoit un régime de soins dentaires

Un cours d'une durée de deux ans destiné à la formation du personnel auxiliaire dentaire conduira à l'établissement d'un programme de soins den-



taires pour les enfants de 12 ans et moins, c'est ce qu'a annoncé le ministre de la Santé de la Saskatchewan M. Walter Smishek le 31 mars dernier.

M. Smishek qui parlait lors de la seconde lecture d'un projet de loi concernant la formation du personnel auxiliaire a annoncé qu'on s'attendait à quelque 50 étudiantes la première année.

"Lorsque ces étudiantes auront terminé leur programme de formation, donc d'ici deux ans, nous mettrons sur pied ce programme de soins dentaires".

"Les thérapeutes dentaires et autres membres du personnel auxiliaire auront reçu une formation suffisante pour rendre la plupart des services de prévention dentaire et exécuter quelques traitements de restauration simple... comprenant l'obturation des dents ainsi que l'extraction des dents dans certaines circonstances".

### **Andras adoucira le projet de loi sur la compétition**

Selon M. Robert Andras, Ministre de la Consommation, le gouvernement fédéral prévoit effectuer des changements importants au sein du projet de loi sur la compétition avant que le projet ne soit représenté devant la Chambre des Communes à l'automne prochain. Cette déclaration date du 17 mars.

Cette législation réglemant la compétition avait été rendue publique au mois de juin et proposait des mesures très sévères visant un très grand nombre de pratiques, comprenant aussi les guides d'honoraires ainsi que les barèmes d'honoraires.

Dans une déclaration supplémentaire, M. David Henry, directeur du service d'enquête auprès du Ministère de la Consommation, ajouta que les changements dans ce projet de loi, pour ce qui est des associations professionnelles, pourront être revus après discussion avec les provinces et ces organismes.

### **Un système d'échelons pour les auxiliaires**

Un système d'enseignement pour les auxiliaires dentaires qui permette une certaine flexibilité dans les prérequis académiques, un système d'échelons dans la profession, ainsi qu'un programme d'enseignement permanent pour préparer les auxiliaires en service à accomplir des tâches plus nombreuses, voilà ce qu'a été recommandé au Conseil de l'enseignement dentaire de l'Association Dentaire Américaine.

Cette proposition vient d'un comité représentant divers groupes associés à l'enseignement dentaire ainsi qu'à l'uti-

lisation des auxiliaires dentaires aux USA.

Le groupe en question a insisté sur la flexibilité des prérequis académiques. Il faudrait selon lui être en mesure d'enseigner un certain nombre de tâches additionnelles sans pour autant allonger la durée des études de l'auxiliaire dentaire. Ce programme devrait permettre un certain nombre d'expérimentations en raccourcissant la durée des études.

Le groupe a aussi recommandé la conduite d'une enquête pour déterminer dans quelle mesure les techniciens de laboratoire dentaire pourraient accomplir des tâches additionnelles dans le cabinet dentaire.

## **L'enseignement dentaire**

### **A l'avenir, la formation dentaire ne durera que trois ans**

Lors d'une assemblée de l'Association américaine des facultés dentaires qui se déroulait à Las Vegas du 20 au 23 mars dernier, un professeur a déclaré aux participants que dans l'avenir, les étudiants dentaires complèteraient leurs études universitaires en trois ans au lieu de quatre comme c'est présentement le cas, et ceci grâce à des programmes plus flexibles et à un enseignement individualisé.

Sheldon Rovin de l'Université du Kentucky a indiqué que certaines facultés dentaires ont déjà accepté ces programmes se déroulant sur trois ans et les offrent à des étudiants qui ont été sélectionnés dans ce but.

"Il n'existe aucune relation directe entre le nombre d'années consacrées aux études, tout comme il est impossible de demander à tous les étudiants d'une même classe d'avancer au même pas", a-t-il déclaré.

"On devrait décerner son diplôme à l'étudiant qui a démontré sa compétence, et ceci sans tenir compte du temps requis pour l'obtenir, sans tenir compte non plus du niveau de ses camarades de classe ou des ennuis que tout ceci peut causer à son professeur" a-t-il ajouté.

## **La fluoruration**

### **La fluoruration de l'eau n'empêche pas l'ostéoporose**

D'après des données compilées dernièrement on s'est aperçu que même si

l'eau fluorée dans des proportions d'une partie par million protégeait contre la carie dentaire, la quantité de fluorure restait insuffisante pour retarder l'ostéoporose.

Des études précédentes portant sur des groupes habitant des localités bénéficiant d'une eau naturellement fluorée mais dans des proportions de quatre à huit fois plus élevées, indiquent que l'ostéoporose est moins fréquente que d'habitude. On ne savait cependant pas si le fluorure à 1 ppm était suffisamment efficace.

Des savants américains ont comparé des analyses chimiques et des études microscopiques faites sur des spécimens de côtes, de vertèbres et d'aortes abdominales prélevées sur des habitants vivant dans des centres fluorés et d'autres ne profitant pas de la fluoration.

A part les différentes quantités de fluorure, les chercheurs ne trouvèrent aucune différence dans la chimie de l'os et dans les résultats microscopiques des os de personnes ayant vécu depuis longtemps à Grand Rapids, Michigan, où l'eau est fluorée à 1 ppm depuis 26 ans, et ceux qui avaient vécu à New York avant 1965 où l'eau ne contenait que 0.1 ppm ou à Albany, NY où le taux de fluorure était le même. Au taux de 1 ppm dans l'eau, le squelette adulte absorbait et retenait un plateau relativement stable de fluorure de 0.15 p.c. en moyenne pour les gens âgés de 40 à 60 ans comparé à un peu moins de 0.1 p.c. dans les os des résidents de New York et d'Albany.

De plus on ne découvrit aucune autre pathologie osseuse anormale chez les résidents de Grand Rapids qui avaient consommé de l'eau fluorée depuis 20 ans comparé aux gens habitant New York ou Albany.

## **Technologie nouvelle**

### **Nouveau foret en provenance de Hollande**

Une compagnie hollandaise vient de mettre sur le marché un nouveau foret dentaire qui est relié directement à un moteur, (à jeter après usage), sans aucun câble d'entraînement flexible. Le tout comprend le moteur avec une pièce à main et contre-angle et une boîte rectangulaire contenant le transformateur et les différents contrôles électriques. Après utilisation, le moteur ainsi que la pièce à main et le contre-angle peuvent être posés sur la boîte.

En reliant le moteur à la pièce à main ou au contre-angle, le manufacturier a éliminé le câble d'entraînement flexible, éliminant ainsi les réparations ou le remplacement de ce dernier.



Le moteur qui est censé durer environ 700 heures est moins coûteux à remplacer que les armatures, les roulements à billes et autres morceaux nécessitant des réparations. Equipé de roulements à billes auto-lubrifiants, le moteur tourne à 6,000 ou 12,000 tours minute, consommant une énergie d'environ 36 watts.

Ce moteur pèse 0.28 lb et a un diamètre d'environ 2 x 1.2 pouces. Une version plus légère est aussi offerte; le poids en est d'à peu près 0.11 lb et les dimensions de 2 x 1 pouces. Selon les indications du manufacturier, la version plus légère a été conçue pour préparer les incrustations, les ponts et pour ajuster les prothèses. L'autre modèle est recommandé pour le travail de l'or ou de la porcelaine.

Pour de plus amples informations, contactez l'Ambassade royale des Pays-Bas, 275 Slater St, Ottawa, Ont K1P 5H9.

## Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 30 avril 1972:

*Fonds à revenu fixe* \$12.852;

*Fonds d'actions ordinaires* \$27.488.

L'avoir total (valeur marchande) du régime se montait à \$13,225,540.06.

Au cours du mois précédent, les transactions ont été les suivantes: achat 500 actions de Hudson Bay Oil and Gas et une obligation convertissable de \$75,000 Pacific Petroleum 5 p.c. 1 mai 1992; vente 6,000 actions de Husky Oil et 5,000 actions de Maclean-Hunter.

Pour de plus amples renseignements, veuillez écrire à: CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto 180, Ont.

## La recherche

### Les problèmes périodentaires associés à la grossesse sont temporaires

Une recherche menée par des dentistes de l'Université de la Pennsylvanie démontre que même si la grossesse engendre une certaine tendance aux maladies périodentaires, d'ordinaire les gencives retrouvent leur état normal environ six mois après que la mère a accouché.

En prenant deux groupes de femmes, les unes enceintes, les autres non, sur une période de deux ans, on s'aperçut

que la mobilité horizontale de la dent commence à s'accroître le 3<sup>e</sup> mois, atteint son sommet à six mois et commence à diminuer le 9<sup>e</sup> mois. Tout revient à la normale six mois après la naissance de l'enfant.

A la fin de deux années la mobilité dans les deux groupes avait augmenté de façon similaire, mais peu à vrai dire.

Une autre découverte fut que l'augmentation considérable de gingivite observée chez les femmes enceintes suivait le même patron en ce qui concerne le temps.

Après deux ans on trouva chez les deux groupes de femmes la même quantité de plaques et de tartre, le même degré d'inflammation et la même profondeur des poches périodentaires.

### Recherche encourageante sur l'induction de l'os

Les personnes qui portent des prothèses ainsi que les victimes de cancer ou d'accidents devraient pouvoir bénéficier des études faites par deux savants de l'Université de Boston sur l'induction de l'os. Ces études indiquent qu'il est désormais possible de se passer de prélever de l'os sain sur le squelette pour effectuer une réparation d'une autre partie osseuse.

D'ordinaire l'os prélevé sur une autre personne est rejeté. Les savants ont aussi découvert que l'os spongieux était toujours rejeté. Mais lorsque l'os cortical prélevé sur un autre animal appartenait à la même espèce était déminéralisé et posé sur l'os à traiter, il n'était pas rejeté, même après 18 mois. Au contraire il active la croissance du nouvel os qui peu à peu remplace le greffon.

Dans leurs expériences sur les animaux, les deux savants ont utilisé l'os cortical déminéralisé pour remplir des brèches ou pour construire une crête sur les mâchoires inférieures, tout comme si on les préparait à recevoir une prothèse. Les résultats furent si encourageants qu'on songe maintenant à appliquer cette méthode à l'homme.

Les expériences faites sur des animaux comprenaient un incident où l'os cortical décalcifié était resté efficace même après huit mois d'entreposage.

### L'absence de fluor et la négligence: danger pour les jeunes cardiaques

Des recherches effectuées par un scientifique dentaire de l'Université de la Colombie Britannique travaillant à Boston démontre que les enfants souffrant de troubles cardiaques congénitaux ont souvent une mauvaise santé dentaire et

souffrent aussi de maladies dentaires causées par la négligence qui à la longue peuvent compliquer leur maladie cardiaque. S. L. Khanna, professeur assistant de dentisterie restauratrice à l'UCB et L. T. Swanson, de Boston, ont réuni des résultats provenant de 68 patients souffrant de troubles cardiaques congénitaux, patients traités au Boston Children's Hospital. Cette étude faisait partie d'un projet plus considérable visant à mesurer l'adaptation de jeunes cardiaques à la société.

Les caries, les maladies périodentaires et autres infections buccales peuvent provoquer des bactériémies qui à leur tour peuvent causer des endocardites bactériennes subaiguës spécialement chez les patients qui souffrent de certains troubles cardiaques. Les docteurs Khanna et Swanson découvrirent que les jeunes cardiaques faisant l'objet de l'étude manifestaient un mauvais état dentaire et que plus de 60 p.c. d'entre eux ne recevaient aucun soin dentaire régulier. Chaque enfant souffrait de gingivite. Le plus jeune, âgé de huit ans, avait des caries dans 25 p.c. de ses dents, et dans l'étude en question, le pourcentage augmentait avec l'âge. Aucun des enfants n'avait bénéficié de suppléments de fluor, l'eau de Boston n'étant pas fluorée.

### Plans de combat contre la maladie périodentaire

On s'attend à ce que l'injection supplémentaire de \$1.3 du gouvernement des Etats-Unis pour des études sur les maladies périodentaires pave le chemin d'un effort plus grand pour lutter contre cette maladie.

Cet octroi supplémentaire aidera à défrayer le coût d'études sur la prévention des plaques dentaires par des moyens chimiques et mécaniques puisque jusqu'ici le contrôle de la plaque bactérienne semble la solution la plus efficace pour vaincre les maladies gingivales.

On projette aussi:

-Des études cliniques et de laboratoire visant à comprendre la biologie de la plaque, comprenant sa composition bactérienne, sa chimie, le mécanisme adhésif, l'immunologie et la pathologie.

-Des études sur la gravité de la maladie périodentaire chez les patients souffrant de troubles du tissu conjonctif et ayant des déficiences immunologiques.

-Des études longitudinales sur la maladie périodentaire.

-Une enquête sur les effets de la maladie périodentaire sur la santé en général.

-Le développement de modèles in vitro et in vivo et autres méthodes propres à mesurer la maladie périodentaire.



Anticariogenic effect of dicalcium phosphate dihydrate chewing gum: Results after two years

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*This study evaluates the clinical anticariogenic effectiveness of a sugar chewing gum containing dicalcium phosphate dihydrate. The 850 children who participated in the study were divided into three groups. After two years there were no statistically significant differences between the mean total caries increments of the group of children who chewed a sugar phosphate gum when compared with either the group who chewed sugarless gum or the non-chewing group.*

*Cette étude évalue les propriétés cliniques anticariogéniques d'une gomme à mâcher sucrée contenant du phosphate. Les 850 enfants qui participèrent à l'étude furent répartis en trois groupes. Après une période de deux ans il n'y avait pas de différences statistiquement significatives en ce qui concerne l'accroissement moyen des caries entre le groupe d'enfants qui mâchaient cette gomme à base de phosphate, celui qui utilisait une gomme sans sucre et le groupe qui se passait tout simplement de gomme à mâcher.*

In 1965 the principal author of this paper reviewed previous publications regarding the role of chewing gum in preventive dentistry.<sup>1</sup> At that time he concluded that: (a) plain chewing gum does not increase or decrease dental caries increments; (b) chewing gum with an added therapeutic agent (synthetic vitamin K, nitro-furan, chlorophyll and fluoride compounds) may re-

duce tooth decay but conclusive proof awaits large-scale clinical trials; (c) the dental profession cannot recommend or reject chewing gum as an effective method for improving oral health.

More recent evidence indicates that phosphates reduce caries in laboratory rodents.<sup>2</sup> Four separate studies have shown that anhydrous calcium orthophosphate, at a level of 1.75 per cent in a cariogenic diet fed to rats, can reduce caries by 66.4 to 94.3 per cent.<sup>3,4</sup> Sugar-agglomerated dicalcium phosphate dihydrate stabilized with tetrasodium pyrophosphate is even more effective in reducing caries in rats than the non-sugar coated phosphate.<sup>5</sup>

In vitro studies of various phosphate salts, using human teeth and saliva, have shown dicalcium phosphate dihydrate as the most effective agent to reharder enamel.<sup>6</sup> The optimum concentration of this phosphate is reportedly between 7.5 and 10 per cent.<sup>7</sup> Chewing a gum containing dicalcium phosphate dihydrate also produces marked elevations in salivary calcium and phosphate which persist for five to 10 minutes after removal of the gum.<sup>8</sup>

Phosphates have been added to human diets and tested for anticariogenic effectiveness.<sup>9-12</sup> Vehicles used were bread, wheat flour, sugar and breakfast cereals. However, the results were inconclusive, minimal or negative.

Finn and Jamison<sup>13</sup> conducted a clinical study with 416 subjects over a 30 month period. The participants were divided into three groups: one chewed the test gum with sugar-agglomerated dicalcium phosphate dihydrate, the second chewed a regular sugar gum, and the third a sugarless gum. The test gum group had a significantly lower mean caries increment than the group which chewed the regular sugar gum. The mean caries increment did not differ significantly in the test

Examiner error established by re-examination of 39 grade 6 children at two week interval Table 1

|      | 1st exam | 2nd exam | Difference | % difference |
|------|----------|----------|------------|--------------|
| DMFT | 226      | 206      | 20         | 8.8          |
| DMFS | 383      | 352      | 31         | 8.0          |



gum group and the group which chewed the sugarless gum.

The aim of the present study was to evaluate further the clinical anticariogenic effectiveness of a sugar chewing gum containing dicalcium phosphate dihydrate. This report records the results after two years.

## Method

British Columbia School District No. 11, involving the Trail-Rossland area, was chosen as the test site. Approximately 1,000 children in grades 3 and 4 were asked to participate, and 850 consents were received. Most of the children were aged eight to 10 but a few were as young as seven or in the 11-12 year age group. In May 1967 baseline examinations were conducted by one examiner (A.S.R.) using new Clevedent No. 5 explorers, plane mouth mirrors and standardized lighting. All explorers were discarded after a maximum of 30 examinations. Examination error was established at 8.0 per cent for DMFS and 8.8 per cent for DMFT by re-examination of 39 children at a two week interval (Table 1).

The examination also included two to four posterior bitewing radiographs plus four to six anterior periapical radiographs which were exposed by a registered dental hygienist using a short cone portable x-ray unit. Posterior radiolucent areas in the proximal area were considered carious if they extended half way to the dentinal enamel junction. Due to frequent crowding and rotation of newly erupted incisors, radiographic overlap was often unavoidable. To reduce the resulting radiographic errors and reversals in the anterior teeth, proximal radiolucent areas were not considered carious unless the area extended fully to the dentinal enamel junction. The same examiner read all radiographs and the findings were then added to the clinical charts.

On the basis of sex, age and previous caries experience, children were randomly separated into three comparable groups: group 1 chewed three sticks of sugarless chewing gum per school day; group 2 received no chewing gum and served as a control; and group 3 chewed three sticks of the test gum per school day. Each stick of test gum contained 0.54-0.84 Gm

chewing gum base, 0.42-0.54 Gm corn syrup, 1.35-1.80 Gm sugar and 0.42-0.48 Gm dicalcium phosphate dihydrate.

The chewing took place, under supervision, in the classrooms just prior to morning recess, lunch break and school closing and each stick of gum was chewed for 20 minutes. The two gums were similarly flavoured and packaged.

All classrooms contained children from each group. One week's supply of gum per group was stored in well marked plastic containers in the teacher's desk. At the designated times the gum was distributed by student monitors to the children whose names were listed on the boxes. Every week the boxes were replaced with similarly labelled boxes containing fresh gum. Unlabelled fluoride-free tooth paste and toothbrushes were available to all participants for the duration of the study. The area water supplies were tested monthly for fluoride content. The mean fluoride content in parts per million ranged from .11 to .44 with an overall mean of less than .25.

This study commenced in February 1968 and continued to April 1970 (approximately 400 school days). The second, third and fourth clinical and radiographic examinations were conducted during May 1968, 1969 and 1970 respectively. The study was double blind in that the children in the study groups did not know which gum they were receiving and the examiner had no knowledge as to which group the children had been allocated.

## Results

Study data were analysed by computer in a manner previously reported.<sup>13</sup> Due to the close proximity of the second examinations and the commencement of chewing, comparisons contrast the second and third, and second and fourth examinations. Analyses of 652 subjects were carried out for all teeth and surfaces and for proximal surfaces of all teeth.

Tables 2 and 3 compare the numbers, average age and initial caries status of the groups. About equal numbers remained in each group, average age was almost identical, and the initial caries status of all groups

Comparison of age and initial caries status for subjects present throughout the study

Table 2

| Item                                                               | Group 1<br>(Sugar-<br>less gum) | Group 2<br>(Non-<br>chewing) | Group 3<br>(Sugar<br>phosphate<br>gum) | Group comparisons    |           |                      |           |                      |           |
|--------------------------------------------------------------------|---------------------------------|------------------------------|----------------------------------------|----------------------|-----------|----------------------|-----------|----------------------|-----------|
|                                                                    |                                 |                              |                                        | 1 vs. 2              |           | 1 vs. 3              |           | 2 vs. 3              |           |
|                                                                    |                                 |                              |                                        | %<br>differ-<br>ence | t<br>test | %<br>differ-<br>ence | t<br>test | %<br>differ-<br>ence | t<br>test |
| No.                                                                | 213                             | 217                          | 222                                    |                      |           |                      |           |                      |           |
| Average age                                                        | 9.15                            | 9.16                         | 9.18                                   | -0.12                | -0.14     | -0.33                | -0.38     | -0.21                | -0.24     |
| Initial caries status per<br>subject for all teeth and<br>surfaces |                                 |                              |                                        |                      |           |                      |           |                      |           |
| DMFT                                                               | 4.31                            | 4.54                         | 4.67                                   | -5.06                | -0.90     | -7.84                | -1.58     | -2.92                | -0.54     |
| DFS                                                                | 7.22                            | 7.37                         | 7.28                                   | -2.13                | -0.33     | -0.93                | -0.15     | 1.21                 | 0.19      |
| DMFT per 28 teeth                                                  | 6.87                            | 7.10                         | 7.40                                   | -3.28                | -0.68     | -7.07                | -1.53     | -3.93                | -0.85     |
| DFS per 122 surfaces                                               | 12.19                           | 12.30                        | 12.35                                  | -0.91                | -0.15     | -1.34                | -0.22     | -0.43                | -0.07     |
| Original sound teeth                                               | 13.73                           | 13.12                        | 13.70                                  | 4.43                 | 1.41      | 0.18                 | 0.05      | -4.25                | -1.29     |
| Original sound surfaces                                            | 66.94                           | 64.79                        | 67.97                                  | 3.21                 | 1.06      | -1.52                | -0.46     | -4.67                | -1.48     |



at both the second and third examinations was substantially equal for both teeth and surfaces. The initial DMFT based on 28 teeth per subject and initial DMFS per 122 surfaces<sup>14</sup> were also found to be substantially equal. Adjustment to a standard number of teeth and surfaces eliminates the effect of varying numbers of teeth and surfaces per subject and renders the rates more directly comparable.

Original sound teeth and surfaces per subject were fairly equal, although the numbers for the non-chew-

ing group were slightly below those for the other two groups.

None of the group comparisons for the factors shown in Tables 2 and 3 revealed differences approaching statistical significance.

Tables 4 and 5 summarize the caries increments for all teeth and surfaces and for sound and newly erupted teeth at the third and fourth examinations for the three experimental groups. The comparison of each pair of groups is shown in the form of percentage dif-

**Comparison of age and initial caries status of proximal surfaces of all teeth for subjects present throughout the study**

**Table 3**

| Item                                                         | Experimental group 1<br>(Sugarless gum) | Experimental group 2<br>(Non-chewing) | Experimental group 3<br>(Sugar phosphate gum) | Group comparisons |        |              |        |              |        |
|--------------------------------------------------------------|-----------------------------------------|---------------------------------------|-----------------------------------------------|-------------------|--------|--------------|--------|--------------|--------|
|                                                              |                                         |                                       |                                               | 1 vs. 2           |        | 1 vs. 3      |        | 2 vs. 3      |        |
|                                                              |                                         |                                       |                                               | % difference      | t test | % difference | t test | % difference | t test |
| No.                                                          | 213                                     | 217                                   | 222                                           |                   |        |              |        |              |        |
| Average age                                                  | 9.15                                    | 9.16                                  | 9.18                                          | -0.12             | -0.14  | -0.33        | -0.38  | -0.21        | -0.24  |
| Initial caries status per subject for all teeth and surfaces |                                         |                                       |                                               |                   |        |              |        |              |        |
| Proximal DMFT                                                | 2.16                                    | 2.34                                  | 2.37                                          | -7.55             | -0.73  | -8.48        | -0.88  | -1.01        | -0.10  |
| Proximal DFS                                                 | 2.31                                    | 2.39                                  | 2.30                                          | -3.42             | -0.30  | 0.35         | 0.03   | 3.76         | -0.35  |
| Proximal DMFT per 28 teeth                                   | 3.33                                    | 3.44                                  | 3.62                                          | -3.28             | -0.34  | -8.06        | -0.84  | -4.95        | -0.52  |
| Proximal DFS per 56 surfaces                                 | 3.54                                    | 3.59                                  | 3.60                                          | -1.55             | -0.14  | -1.69        | -0.14  | -0.14        | -0.01  |
| Original sound teeth                                         | 15.87                                   | 15.31                                 | 16.01                                         | 3.50              | 1.26   | -0.88        | -0.29  | -4.35        | -1.49  |
| Original sound surfaces                                      | 33.50                                   | 32.52                                 | 33.88                                         | 2.93              | 1.10   | -1.11        | -0.38  | -4.01        | -1.44  |

**Comparison of mean caries increments for all teeth and all surfaces at third examination**

**Table 4**

| Item per subject                                      | Group 1<br>(Sugarless gum) | Group 2<br>(Non-chewing) | Group 3<br>(Sugar phosphate gum) | Group comparisons |        |              |        |              |        |
|-------------------------------------------------------|----------------------------|--------------------------|----------------------------------|-------------------|--------|--------------|--------|--------------|--------|
|                                                       |                            |                          |                                  | 1 vs. 2           |        | 1 vs. 3      |        | 2 vs. 3      |        |
|                                                       |                            |                          |                                  | % difference      | t test | % difference | t test | % difference | t test |
| Increment of DFT                                      | 1.49                       | 1.46                     | 1.74                             | 2.46              | 0.25   | -14.14       | -1.44  | -16.25       | -1.65  |
| Increment of DFS                                      | 2.71                       | 2.78                     | 3.44                             | -2.51             | -0.29  | -21.05       | -2.49* | -19.02       | -2.18* |
| Increment of DMFT                                     | 1.49                       | 1.47                     | 1.74                             | 1.84              | 0.19   | -14.14       | -1.44  | -15.72       | -1.60  |
| Increment of DMFS                                     | 2.91                       | 3.16                     | 3.67                             | -8.07             | -0.90  | -20.84       | -2.48* | -13.89       | -1.54  |
| Increment of DFT/28 teeth                             | 2.58                       | 2.67                     | 3.01                             | -3.51             | -0.36  | -14.25       | -1.50  | -11.13       | -1.13  |
| Increment of DFS/122 surfaces                         | 4.40                       | 4.62                     | 5.39                             | -4.64             | -0.54  | -18.30       | -2.32* | -14.33       | -1.76  |
| Increment of DFT/28 sound teeth present initially     | 2.30                       | 2.12                     | 2.57                             | 7.80              | 0.76   | -10.64       | -1.00  | -17.62       | -1.70  |
| Increment of DFS/122 sound surfaces present initially | 4.46                       | 4.43                     | 5.32                             | 0.63              | 0.07   | -16.28       | -1.91  | -16.81       | -1.98* |
| Increment of DFT/28 new teeth                         | 2.42                       | 3.37                     | 3.08                             | 28.16             | -1.57  | -21.44       | -1.13  | 8.56         | 0.46   |
| Increment of DFS/122 new surfaces                     | 2.25                       | 3.38                     | 2.87                             | 33.46             | -1.77  | -21.73       | -1.15  | 14.98        | 0.76   |

\*Significant at the 5 per cent level



| Item<br>per subject                                         | Group 1<br>(Sugarless<br>gum) | Group 2<br>(Non-<br>chewing) | Group 3<br>(Sugar<br>phosphate<br>gum) | Group comparisons    |           |                      |           |                      |           |
|-------------------------------------------------------------|-------------------------------|------------------------------|----------------------------------------|----------------------|-----------|----------------------|-----------|----------------------|-----------|
|                                                             |                               |                              |                                        | 1 vs. 2              |           | 1 vs. 3              |           | 2 vs. 3              |           |
|                                                             |                               |                              |                                        | %<br>differ-<br>ence | t<br>test | %<br>differ-<br>ence | t<br>test | %<br>differ-<br>ence | t<br>test |
| Increment of DFT                                            | 3.25                          | 3.12                         | 3.33                                   | 3.83                 | 0.50      | - 2.40               | -0.29     | - 6.14               | -0.78     |
| Increment of DFS                                            | 5.47                          | 5.22                         | 6.07                                   | 4.54                 | 0.58      | - 9.93               | -1.24     | -14.03               | -1.78     |
| Increment of DMFT                                           | 3.26                          | 3.14                         | 3.34                                   | 3.68                 | 0.47      | - 2.39               | -0.29     | - 5.98               | -0.75     |
| Increment of DMFS                                           | 5.95                          | 5.89                         | 6.55                                   | 0.99                 | 0.12      | - 9.24               | -1.16     | -10.14               | -1.27     |
| Increment of DFT/28<br>teeth                                | 5.13                          | 5.15                         | 5.40                                   | - 0.52               | -0.07     | - 5.03               | -0.64     | - 4.53               | -0.59     |
| Increment of DFS/122<br>surfaces                            | 7.86                          | 7.58                         | 8.75                                   | 3.59                 | 0.49      | -10.15               | -1.41     | -13.38               | -1.92     |
| Increment of DFT/28<br>sound teeth present<br>initially     | 3.89                          | 3.46                         | 4.27                                   | 11.25                | 1.24      | - 8.75               | -0.94     | -19.01               | -2.12*    |
| Increment of DFS/122<br>sound surfaces present<br>initially | 7.36                          | 6.56                         | 8.40                                   | 10.90                | 1.36      | -12.35               | -1.65     | -21.91               | -3.01*    |
| Increment of DFT/28<br>new teeth                            | 5.50                          | 6.82                         | 5.88                                   | -19.30               | -1.73     | - 6.49               | -0.52     | 13.69                | 1.21      |
| Increment of DFS/122<br>new surfaces                        | 5.69                          | 7.12                         | 5.98                                   | -20.10               | -1.56     | - 4.80               | -0.35     | 16.08                | 1.30      |

\*Significant at the 5 per cent level

ference in the increments, and the value of "t" is given as the test of significance of the difference.

After the first year of the study mean increments of both DFT and DMFT for all teeth of the group chewing sugar phosphate gum were 1.7, which are approximately 15 per cent greater than the similar means (1.5) of the other two groups. However, after a further year of chewing both increments during the second year for the group chewing the sugar phosphate gum were slightly less at 1.6 than for either those of the non-chewing group (1.7) or those of the group chewing sugarless gum (1.8). Therefore, at the final examination the total increments of all groups were very similar: 3.3 for the sugar phosphate gum group, 3.1 for the non-chewing group and 3.3 for the sugarless gum group. However, none of the differences between the mean DFT or DMFT increments for all teeth of each group after one year or two years of chewing were statistically significant.

The mean increments of both DFS and DMFS for all teeth after one year of chewing were lowest for the group chewing sugarless gum and highest for the group chewing sugar phosphate gum. Differences between both means for these two groups were significant at the 5 per cent level of confidence but only for DFS as between the sugar phosphate gum group and the non-chewing group. After the second year of chewing none of the differences between the mean DFS and DMFS increments for all teeth of each group were statistically significant.

When the increments were computed on the basis of DF teeth for 28 teeth per subject and DF surfaces for 122 surfaces per subject as described previously, there were some changes in the percentage differences between the three groups. When mean increments of DF teeth were compared on this basis there were no

statistical differences between the groups after either one or two years of chewing. When considering mean increment of DF surfaces in this way, after one year of chewing the differences between the sugar phosphate group and the other two groups, as reported above, were slightly increased. However, the difference between the sugar phosphate group and the non-chewing group is not statistically significant. However, the difference between the former group and the sugarless gum group is significant at the 5 per cent level of confidence. After two years of chewing differences between increments of DF teeth and DF surfaces for the three groups as calculated by this method are not statistically significant.

Considering only teeth and surfaces which were initially sound and again on the basis of 28 teeth and 122 surfaces, the mean DFT and DFS increments after one and two years of chewing were greater for the sugar phosphate group than those of the other two groups. The difference between the mean DFT increment for sound teeth of the sugar phosphate and the non-chewing groups, though not statistically significant after one year of chewing, was significant after two years. Differences between mean DFS increments for sound teeth for these two groups were statistically significant after both one and two years of chewing. No other differences for either of these indices for initially sound teeth in the three groups were statistically significant.

Increments were also computed for teeth newly erupting during the period of the study and on the basis of 28 teeth and 122 surfaces. After one year of chewing the sugarless gum group had the lowest mean increment and the non-chewing group had the highest mean increment both for DF teeth and DF surfaces. After two years the mean increment of DFS for the non-chewing



group was 20 per cent greater than that of the sugarless gum group and 16 per cent greater when compared to the sugar phosphate group. The additional mean increment during the second year of chewing in terms of DFT and DFS was least in the sugar phosphate gum group. However, none of the differences between mean

increments for newly erupted teeth were statistically significant (Tables 6 and 7).

It has been previously reported that sugar phosphate exerts its maximum effect on the proximal surfaces of the posterior teeth.<sup>13</sup> Differences in increments between sugar phosphate and sugarless gum groups

Comparison of mean caries increments for proximal surfaces of all teeth at third examination

Table 6

| Item per subject                                     | Group 1<br>(Sugarless gum) | Group 2<br>(Non-chewing) | Group 3<br>(Sugar phosphate gum) | Group comparisons |        |              |        |              |        |
|------------------------------------------------------|----------------------------|--------------------------|----------------------------------|-------------------|--------|--------------|--------|--------------|--------|
|                                                      |                            |                          |                                  | 1 vs. 2           |        | 1 vs. 3      |        | 2 vs. 3      |        |
|                                                      |                            |                          |                                  | % difference      | t test | % difference | t test | % difference | t test |
| Increment of DFT                                     | 0.81                       | 0.82                     | 0.99                             | - 1.00            | -0.07  | -18.52       | -1.49  | -17.69       | -1.38  |
| Increment of DFS                                     | 0.99                       | 1.05                     | 1.31                             | - 5.75            | -0.43  | -24.79       | -2.00* | -20.20       | -1.58  |
| Increment of DMFT                                    | 0.83                       | 0.88                     | 1.04                             | - 5.59            | -0.42  | -19.79       | -1.64  | -15.04       | -1.18  |
| Increments of DMFS                                   | 1.08                       | 1.23                     | 1.43                             | -12.24            | -0.95  | -24.62       | -2.07* | -14.10       | -1.10  |
| Increment of DFT/28 teeth                            | 1.30                       | 1.34                     | 1.60                             | - 2.99            | -0.22  | -18.35       | -1.48  | -15.84       | -1.26  |
| Increment of DFS/56 surfaces                         | 1.49                       | 1.59                     | 1.95                             | - 6.44            | -0.49  | -23.67       | -1.98* | -18.41       | -1.52  |
| Increment of DFT/28 sound teeth present initially    | 1.47                       | 1.42                     | 1.76                             | 3.07              | 0.23   | -16.40       | -1.31  | -18.96       | -1.57  |
| Increment of DFS/56 sound surfaces present initially | 1.67                       | 1.69                     | 2.14                             | - 0.87            | -0.06  | -21.84       | -1.82  | -21.16       | -1.80  |
| Increment of DFT/28 new teeth                        | 0.16                       | 0.36                     | 0.04                             | -53.84            | -0.88  | 74.41        | 0.88   | 88.19        | 1.80   |
| Increment of DFS/56 new surfaces                     | 0.16                       | 0.54                     | 0.08                             | -69.45            | -1.13  | 48.83        | 0.51   | 84.37        | 1.48   |

\*Significant at the 5 per cent level

Comparison of mean caries increments for proximal surfaces of all teeth at fourth examination

Table 7

| Item per subject                                     | Group 1<br>(Sugarless gum) | Group 2<br>(Non-chewing) | Group 3<br>(Sugar phosphate gum) | Group comparisons |        |              |        |              |        |
|------------------------------------------------------|----------------------------|--------------------------|----------------------------------|-------------------|--------|--------------|--------|--------------|--------|
|                                                      |                            |                          |                                  | 1 vs. 2           |        | 1 vs. 3      |        | 2 vs. 3      |        |
|                                                      |                            |                          |                                  | % difference      | t test | % difference | t test | % difference | t test |
| Increment of DFT                                     | 1.76                       | 1.57                     | 2.02                             | 11.01             | 1.00   | -12.95       | -1.22  | -22.53       | -2.11* |
| Increment of DFS                                     | 2.24                       | 2.01                     | 2.58                             | 10.07             | 0.87   | -13.09       | -1.15  | -21.84       | -1.88  |
| Increment of DMFT                                    | 1.85                       | 1.69                     | 2.10                             | 8.57              | 0.80   | -12.07       | -1.16  | -19.60       | -1.87  |
| Increment of DMFS                                    | 2.49                       | 2.36                     | 2.83                             | 5.36              | 0.48   | -12.04       | -1.11  | -16.76       | -1.50  |
| Increment of DFT/28 teeth                            | 2.57                       | 2.27                     | 2.97                             | 11.61             | 1.09   | -13.42       | -1.30  | -23.47       | -2.30* |
| Increment of DFS/56 surfaces                         | 3.06                       | 2.72                     | 3.51                             | 11.13             | 1.02   | -12.83       | -1.20  | -22.53       | -2.11* |
| Increment of DFT/28 sound teeth present initially    | 3.00                       | 2.48                     | 3.44                             | 17.38             | 1.67   | -13.00       | -1.24  | -28.11       | -2.82* |
| Increment of DFS/56 sound surfaces present initially | 3.50                       | 2.97                     | 3.96                             | 15.28             | 1.47   | -11.56       | -1.12  | -25.08       | -2.49* |
| Increment of DFT/28 new teeth                        | 0.59                       | 0.73                     | 0.41                             | -19.30            | -0.56  | 30.43        | 0.90   | 43.86        | 1.46   |
| Increment of DFS/56 new surfaces                     | 0.65                       | 0.96                     | 0.51                             | -31.84            | -0.81  | 22.35        | 0.62   | 47.07        | 1.25   |

\*Significant at the 5 per cent level



were in the range of 26 to 37 per cent for those surfaces, although differences were only significant when considering DF teeth. For proximal surfaces of all teeth, differences were in the range of 25 to 31 per cent although only the differences between the indices for DF teeth per 28 teeth were significant.

Comparing proximal surfaces of all teeth, all surfaces of all teeth, and all teeth, percentage differences between mean caries increments of the three groups are remarkably similar after one year of chewing, but somewhat less so after an additional year. However, in teeth that erupted during the study period, the mean increments are considerably lower in both gum-chewing groups than in the non-chewing group. The sugar phosphate group had a mean increment of DFS which was 47 per cent less than that of the non-chewing group and 22 per cent less than that of the sugarless gum group at the fourth examination. Nevertheless, the number of newly erupted proximal surfaces was small in all groups and the differences were not statistically significant.

Reversals in this study are surfaces which were previously recorded as carious, filled or extracted, and at a later examination were diagnosed as sound or unerupted. Between the first and the third examination there were 130 reversals in diagnosis of surfaces for the sugarless gum group, 114 for the non-chewing group and 92 for the sugar phosphate gum group. Between the first and fourth examination the reversals were 129, 146 and 165 respectively; approximately 40 per cent of the reversals were surfaces which had been previously diagnosed radiographically as carious, and approximately 30 per cent were such surfaces diagnosed clinically. The remaining 30 per cent of the reversals were surfaces designated as sound or unerupted which had been previously shown as filled or extracted. For proximal surfaces, reversals at the third examination numbered 188 and at the fourth examination 242; about 70 per cent were surfaces previously diagnosed as carious radiographically and only 10 per cent which had been diagnosed clinically.

It has been suggested that by including radiographs in a clinical trial the examiner may carry out a less thorough examination.<sup>15</sup> In this study there were markedly fewer reversals in the diagnosis of proximal surfaces at the clinical examination as compared to the radiographic examination. This was because the examiner (A.S.R.) relied only on his clinical judgement for overt proximal lesions, leaving the balance to be assessed by radiographic evidence.

## Conclusion

After the first year of chewing, a few of the mean total caries increments for the group who chewed the sugar phosphate gum were significantly greater than for one or both of the other two groups. After two years of chewing, however, there were no statistically significant differences between these indices for the group chewing the sugar phosphate gum when compared with either the non-chewing group or the group chewing sugarless gum. For proximal surfaces there were some significant differences as between the mean total increments for the two groups chewing gum after one year and between the sugar phosphate gum group and the non-chewing group after two years. After one year

for sound surfaces present initially, and after two years for both sound teeth and sound surfaces present initially, there were significant differences in the caries increments between the group chewing sugar phosphate gum and the non-chewing group. The same two year result held for proximal surfaces.

After both one and two years groups that chewed sugarless or sugar phosphate gum showed lower mean increments in caries of newly erupted teeth and surfaces when comparing all surfaces and proximal surfaces only between these two groups and the non-chewing group. As well, the mean increments of proximal caries in newly erupted teeth for the sugar phosphate group were slightly lower than those for the sugarless gum group. However, the increments are under one per subject in each case and none of the differences are statistically significant. Finn and Jamison<sup>13</sup> have suggested that the proximal surfaces of newly erupted teeth may gain some protection from the chewing of sugar phosphate gum. The findings of the present study are in agreement.

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# The current clinical status of fissure sealants

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*This article examines the use of sealants in the prevention of fissure caries. Although their effectiveness is still debatable, there are indications that they may reduce the incidence of pit and fissure decay.*

*Cet article traite de l'utilisation des substances de scellement pour la prévention de la carie des points et fissures. Bien que leur efficacité soit loin d'être universellement reconnue, certaines données portent à croire qu'elles ont un effet réducteur certain de la carie des points et fissures.*

Since Hyatt's initial suggestion for prophylactic odontotomy,<sup>1</sup> treatment of occlusal pits and fissures of children's teeth has been discussed at length. Dentists understandably hesitate to cut cavities in teeth that are intact, but the risk of caries is sufficient in many mouths that a smaller cavity and restoration would result if carious invasion of occlusal surfaces were forestalled.

The nature of the fissures and an understanding of their morphology and susceptibility have been clearly shown by Gillings and Buonocore.<sup>2</sup> In serial sections of teeth they have shown that many apparently intact fissures are quite open, and that infolding of enamel around the fissure frequently leaves the dentine incompletely covered by the enamel. The fissure as viewed in the microscope is often an open channel to the dentine. This is shown in Figure 1 where, to give an idea of dimension, an explorer tip was photographed above the fissure.<sup>3</sup>

The open nature of the fissure, the high incidence of caries therein, the development of possibly adhesive materials, and a view of dental materials as one aspect of prevention have led to the development of occlusal or fissure sealants.<sup>4-6</sup>

Two systems are currently available. In one of these (Epoxylite 9075, Lee Pharmaceuticals) four solutions are applied. In the other a pre-mixed solution is prepared, applied to the teeth and catalysed by an ultraviolet gun<sup>7</sup> (Nuva-Seal, L. D. Caulk Co).

In Canada there has been discussion of the status of such materials with the Food and Drug Units, Health Protection Branch, Department of National Health and Welfare.<sup>8</sup> Clinical trials have also commenced in British Columbia. But sealants thus far lack clinical verification according to the American Dental Association,<sup>9</sup> and there is hesitancy in accepting as final the results that are available.

Meanwhile, what attitude should the practising dentist adopt? It seems logical that he should choose one system or the other and begin applying it. The cost, apart from the ultraviolet gun in the Nuva-Seal system is minor. The possible harmful effects are negligible or non-existent. The benefits are probable but not certain. No harm will be done to the patient and possibly some major benefit may accrue.

✓ Promises of prevention should be avoided; miracle cures may not be available. The use of a sealant fits ✓ logically into a total program of prevention. It is a readily demonstrable item which parents and children can see and understand. Emphasis should be placed only upon its possible value on occlusal surfaces.

During application, the occlusal surfaces should be kept clean and air-dried. The greatest impediment to the development of a good seal is the debris already present in the fissure or pit. This material can only be removed successfully by chemical means (hence the use of preparative solutions). During the application, saliva must not be permitted to contaminate the prepared surfaces, as salivary mucins are good anti-adhesives.

There are some diagnostic difficulties. Pits or fissures which do not catch the explorer tip may be carious; on the other hand, non-carious fissures can also catch probes. The clinician must therefore use his judgement. By a rapid scan of the mouth and the history chart and by his knowledge of the patient's environment, he can assess the nature of the risk. A child with many amalgam restorations in the primary teeth should be treated almost as soon as the molars erupt; but a 60 year old tobacco-chewing male scarcely needs an occlusal sealant.

What will the fissure sealant do in a fissure with undetected caries? At present we know of only one major effect. A sealed but carious fissure which does not catch the explorer tip may be judged as non-carious. Based on the patient's previous caries rate, the length of time the fissure has been exposed to possible attack, the colour and translucency of the enamel and the changes that ensue over the next six to 12 months, the clinician may coat such a fissure and maintain close observation or place a restoration.





Fig 1 On the left is a carious fissure above which, at the same magnification, is outlined the tip of an explorer. On the right is a sealed fissure, in this case entirely in enamel, and above is a bristle of a toothbrush.

A fissure with questionable caries may undergo cavity preparation, but on a less extensive scale than if amalgam were to be used. Into this preparation is introduced a film of fissure sealant and the cavity is filled with any of the composites. The composites are compatible with and adhere to the fissure sealants. Sealants may also be used over composite restorations to seal around the margins and provide a smoother surface. Such treatment may in time lead to a concept of annual maintenance of restorations rather than periodic replacement every 10 to 15 years.

Sealants should not be applied to pulps or within deep cavities. They should not be used in areas adjacent to gingiva where the film may enhance the entrapment of food or debris in the gingival crevice. Total coverage of the tooth with sealant seems equally unjustified; there is no evidence that it has any anticariogenic qualities. A fissure sealant merely restores the integrity of the occlusal surface. Coatings with known anticariogenic agents and postulated for use in interproximal and buccal regions are being developed from a quite different chemical base (polyurethanes such as Epoxylite 9070).

## Conclusion

The high caries susceptibility of fissures and a possible adhesive or sealing action of the polymer base of composites have led to the development of fissure sealants for use in dental practice. Though their effec-

tiveness is still debatable, there are indications that sealants may ultimately help to prevent fissure caries. Regardless of the outcome of clinical trials now underway, no harm will come to patients in whom sealants are used.

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# Dental treatment of children in a general anaesthesia clinic: Review of 300 cases

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*Three hundred consecutive cases treated under general anaesthesia in a private paedodontic anaesthesia clinic are analysed. The treatment was evaluated in terms of the occurrence of unforeseen complications, the necessity of further treatment under general anaesthesia and the elapsed time between the initial and any subsequent dental treatment. The authors conclude that selective use of general anaesthesia plays a useful role in dentistry for children.*

*On analyse ici 300 cas consécutifs traités sous anesthésie générale dans une clinique d'anesthésie pédiodontique privée. Le traitement fut évalué selon la fréquence de complications imprévues, la nécessité de traitements supplémentaires sous anesthésie générale et du temps écoulé entre le premier traitement dentaire et le traitement suivant. Les auteurs en concluent que l'usage judicieux de l'anesthésie générale joue un rôle important dans la dentisterie pour enfants.*

Dentistry for children includes moulding and guiding the patient so that dental treatment is readily accepted rather than rejected.

Most children can accept treatment with local anaesthesia. However, certain children cannot undergo dental treatment under these conditions. For these patients, the facilities offered by a general anaesthesia clinic are a necessary adjunct.

This article reviews the indications and use of general anaesthesia in paedodontic treatment. Also described is an analysis of 300 children who were treated under general anaesthesia.

## Indications

There are many reasons for using general anaesthesia in the treatment of children.<sup>1-8</sup> We have formulated the following classification, employing the aforementioned plus additional indications resulting from our experiences:

1. Lack of patient cooperation or communication—  
(a) extensive dental treatment; (b) management problem; (c) age; (d) apprehension; (e) physically and psychologically handicapped children.
2. Single visit comprehensive treatment.
3. Significant medical history.

### *Lack of patient cooperation or communication*

Included in this group are patients who cannot be treated satisfactorily without risk of psychological trauma.

The dentist must assess each patient's capacity to accept treatment and he must not exceed the patient's tolerance limits. These limits vary with age, education, comprehension, communication, general state of health and emotional stability.

**Extensive dental treatment** — Often extensive treatment is required as a result of dental neglect or lack of appreciation of the value of dental care. Lowell and Solomon's<sup>9</sup> description of a preschool age patient requiring endodontic therapy for six molar teeth is a classic example.

Other patients need surgical procedures which are more traumatic than routine restorative and endodontic treatment. This is exemplified by surgical extraction of an unerupted mesiodens or an ankylosed primary molar.

Admittedly, some children accept such treatment in the dental office, but such patients often become less cooperative through successive appointments.<sup>4</sup> The end result is an apprehensive patient, or worse, one who presents with a behaviour problem.

**Management problem** — In this category are patients who refuse to accept dental treatment for any number of reasons — psychological makeup, a previous traumatic experience, immaturity, parental overprotection.

**Age** — The acceptance of dental treatment varies directly with the child's age and treatment needs. A younger patient who requires considerable treatment is an excellent candidate for general anaesthesia. Patients under the age of three, regardless of their treatment needs, are seldom good candidates for treatment in an office. Since the powers of reasoning and the ability to communicate or comprehend are extremely limited at this age, treatment under general anaesthesia is the method of choice.

**Apprehension** — The apprehensive patient displays fear of dental procedures. When the indicated treatment is not extensive, the "tell, show and do" approach may suffice to allay his anxiety, but when treatment needs are more complex and thus more demanding for the



patient, it may be necessary to resort to general anaesthesia.

*Physically and psychologically handicapped children* — These children, too, are treated with greater ease and success under general anaesthesia.

#### *Single visit comprehensive treatment*

In this category are the children whose parents or guardians cannot accompany them on several successive office visits. Major contributing factors are distance between the patient's residence and the dental office, and situations where both parents are working.

#### *Significant medical history*

Although known allergies to local anaesthetics are rare and difficult to assess, Lawson<sup>2</sup> feels that general anaesthesia is indicated in all patients who have experienced any obscure adverse reaction to a previous local anaesthetic injection.

Patients who need prophylactic administration of medications, such as antibiotics, can be more safely treated in one comprehensive visit.

#### **Advantages of general anaesthesia in a private clinic**

In 1964, Bourne et al<sup>10</sup> suggested the establishment of "special outpatient dental clinics, fully equipped for all forms of anaesthesia and dentistry, where the patients, all of them ambulatory and returning the same day to their homes, would be properly anaesthetized by whatever agent or method the expert anaesthetist thought suitable in each case; and the dentist would be given all the time he needed to do the work with precision and free from anxiety."

Having treated our patients in such a clinic, certain advantages are very apparent. This method of treatment has proved to be safe, efficient, convenient and void of emotional trauma for the patient. In fact, none of them remembered any aspect of the treatment. This amnesia is very important with apprehensive and young patients where psychological trauma should be avoided.<sup>11</sup>

We were able to accomplish extensive treatment of high quality in a single visit, with no discomfort to the patient and less physical and mental stress for both patient and dentist than is otherwise possible.

We developed excellent rapport with our patients, encouraging them to embark on a preventive program so as to minimize future treatment requirements and make such treatment acceptable in a dental office.

We agree with Album<sup>12</sup> that selective use of general anaesthesia enables young or apprehensive patients to build confidence in themselves as patients and in their dentist.

#### **Procedure**

*Before anaesthesia* — Only patients presenting as a good anaesthetic risk are accepted in a private clinic.

We request from their paediatrician a complete physical examination, a written report and a consultation, if needed.

Sodium pentobarbital, in suppository or elixir form, is the premedication of choice, since minimal excitation is encountered. Recommended dosages are 30 mg ( $\frac{1}{2}$  gr) for children between ages two and three; 60 mg (1 gr) between three and four; and 120 mg (2 gr) for children four years and over.

The patient should take no nourishment prior to anaesthesia and the parents must be alerted to the possible effects of the premedication. The child should be kept in bed and carried to the clinic since his equilibrium may be seriously disturbed.

*During anaesthesia* — Induction is started with nitrous oxide, followed by halothane. During the first minutes of anaesthesia an appropriate dose of atropine and succinylcholine is administered intravenously and the patient is intubated, using a nasotracheal tube. The oral cavity is then prepared for treatment with a throat pack, mouth prop, tongue protector and high-speed suction. The eyes are protected with gauze pads soaked in saline solution.

Anaesthesia is maintained with a mixture of nitrous oxide, halothane and oxygen, using a non-rebreathing system, a Blease vaporizer and an M. D. Leigh valve.

At regular intervals, respiration is assisted manually in order to prevent any alveolar collapse. The heart is monitored constantly by an electronic pulse reader.

*After anaesthesia* — When the dental treatment is completed, the stomach is suctioned and the oral cavity is thoroughly cleaned before extubation. Recovery is quick, and the child breathes oxygen until he can no longer tolerate the mask. He is then transferred to the recovery room and is allowed to return home at the anaesthetist's discretion.

The parents are given instructions about the patient's diet for the rest of the day, together with other relevant information, and are asked to report on his condition at the end of the afternoon.

*Particular problems* — We consider it preferable to avoid premedication in mentally retarded children. We find that the loss of equilibrium encountered with sodium pentobarbital increases the patient's confusion and makes him extremely difficult to manage.

In children who suffer from a cold, general anaesthesia is quite safe provided the patient has no fever.

Respiratory pathology is of prime importance in paediatric anaesthesia since the anatomical respiratory structures are so small. The anaesthetist must therefore insist on a detailed respiratory history, and evaluate precisely any reported respiratory difficulty. In case of doubt, a radiograph of the respiratory tree will prevent many accidents and may disclose a possible abnormality or interference with pulmonary ventilation such as a stricture or a polyp.

Sodium pentobarbital intensifies the restlessness of hyperactive children (cerebral dyskinesia). Premedication with amphetamines results in a much appreciated serenity.

A solution of 5 per cent dextrose is administered intravenously to prevent dehydration during prolonged operations.



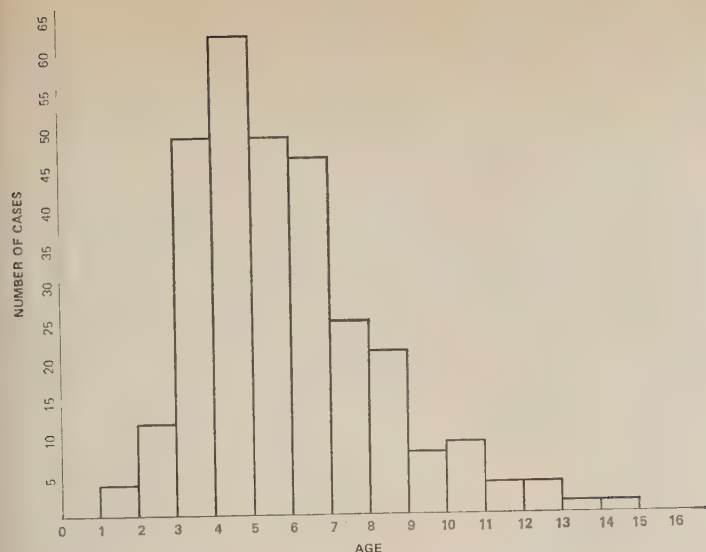


Fig 1 Age distribution of 300 children treated under general anaesthesia.

Suppositories of dimenhydrinate (Gravol) or promethazine (Phenergan) inserted prior to recovery help to eliminate postoperative complications in anxious or allergic patients.

### Analysis of 300 cases

The following is an analysis of 300 consecutive cases of dental treatment performed in our clinic over a four year period.

Table 1 shows the indications for treatment under general anaesthesia with the corresponding percentages of the total number of patients treated. Like Allen and Sim<sup>13</sup> we found that extensive treatment is the most frequent indication for general anaesthesia.

Figure 1 and Table 2 portray the age and sex distribution of our sample. The age range for boys was 1.5 to 14.7 years while that for girls was 1.7 to 12.2 years. The mean ages of the male and female patients are 5.4 and 6.2 years respectively, with the number of male and female patients being almost equal, 49 and 51 per cent respectively.

The four year age group accounts for 62 (20.6 per cent) patients while the three and five year old groups represent 50 (16.6 per cent) each.

Indications for general anaesthesia in 300 children receiving dental treatment

Table 1

| Indications                       | No. of cases | Per cent |
|-----------------------------------|--------------|----------|
| Extensive treatment               | 125          | 41.6     |
| Management problem                | 70           | 23.4     |
| One visit comprehensive treatment | 34           | 11.3     |
| Age                               | 29           | 9.7      |
| Apprehension                      | 23           | 7.7      |
| Medical history                   | 19           | 6.3      |
| Total                             | 300          | 100.0    |

All patients were treated in a single visit with the exception of one whose treatment necessitated two sessions.

The mean duration of the dental treatment was 80.1 minutes, with a range of five to 180 minutes. These figures apply to only the time needed to complete the dental treatment, and do not include induction of anaesthesia, intubation, extubation and recovery.

*Nature of treatments* — Table 3 illustrates 18 different treatment procedures and the number of teeth and patients receiving these treatments. In 30 of these patients treatment was limited to oral surgery.

*Patient follow-up* — Table 4 gives a follow-up analysis of the 300 children treated in our clinic. The most important results are the time elapsed since and the success of the initial treatment. Two hundred and seventeen patients (72.4 per cent) received routine follow-up examinations.

Of these 217 patients, 84 (38.6 per cent) required further treatment but only nine (10.7 per cent) had to be treated again under general anaesthesia after a mean elapsed time of 15.6 months since initial treatment.

The reasons for further treatment in the clinic were as follows: five patients continued to present management problems, three required extensive treatment and one resided at a great distance from the office.

The remaining 75 (89.3 per cent) patients were successfully treated in the office after a mean elapsed time of 14.0 months since initial treatment.

One hundred and thirty-three patients (61.4 per cent) being followed up have not required treatment to date. The mean elapsed time since initial treatment of this group is 16.2 months.

Eighty-three patients (27.6 per cent) did not return for further examination or treatment either for unknown reasons, because they had moved elsewhere, or because they had been referred to us by their own dentist for treatment under general anaesthesia.

### Discussion

Clearly, treatment under general anaesthesia is no "crutch" for the patient or dentist, since only 10.7 per cent were so treated for a second time. Furthermore, these patients represented the most difficult treatment problems one encounters — severe management problems, and families who refuse to carry out the preventive or maintenance measures necessary to achieve desirable results.

Sex and distribution of 300 children treated under general anaesthesia

Table 2

| Sex    | No. of cases | Per cent | Age (years) |          |
|--------|--------------|----------|-------------|----------|
|        |              |          | Mean        | Range    |
| Male   | 147          | 49.0     | 5.4         | 1.5-14.7 |
| Female | 153          | 51.0     | 6.2         | 1.7-12.2 |
| Total  | 300          | 100.0    | 5.8         |          |



Our results substantiate the experience of Tocchini et al<sup>7</sup> that "... once the patient has been treated under a general anaesthetic, he will cooperate in most instances, to the extent that future treatment can be performed at the dental office in a routine way."

The mean time intervals of 15.6 and 14.0 months between initial and subsequent treatments seem indicative of a high standard of care. They also demonstrate the patients' acceptance and execution of essential preventive and maintenance measures.

The longer time lapse in the remaining untreated group (16.2 months) is probably due to the fact that these patients entered our practice at a later date than the others. With these children we stressed preventive measures more than in the past. We also refined certain aspects of the treatment, such as making more extensive use of stainless steel crowns. Follow-up of this group will continue until the remaining patients are all accounted for, thus allowing a final evaluation and documentation of the complete group.

## Conclusion

The treatment of children in our general anaesthesia clinic has proved to be efficient, convenient and void of any psychological, anaesthetic or dental problems.

We accomplish extensive treatment in a single visit, with no discomfort to the patient, and less physical and mental trauma for both patient and dentist than is otherwise possible.

Regular postoperative examination of 72.4 per cent of our 300 patients has shown the quality of treatment to be very good. Further treatment in the office was only required after a mean time lapse of 14 months.

To date only 10.7 per cent of the patients required further treatment under general anaesthesia, while 89.3 per cent accepted subsequent treatment in the office.

Increasing emphasis on preventive measures and refinements in our restorative procedures are lengthening the time interval between initial treatment and subsequent maintenance care.

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**Nature of treatments rendered 300 children under general anaesthesia** Table 3

| Treatment                    | Patients requiring comprehensive treatment |               | Patients requiring only oral surgery |               |
|------------------------------|--------------------------------------------|---------------|--------------------------------------|---------------|
|                              | Patients treated                           | Teeth treated | Patients treated                     | Teeth treated |
| Amalgam restoration          | 261                                        | 1,195         |                                      |               |
| Stainless steel crown        | 158                                        | 326           |                                      |               |
| Reduction of anterior tooth  | 43                                         | 124           |                                      |               |
| Extraction                   | 167                                        | 644           | 30                                   | 140           |
| Silicate restoration         | 5                                          | 33            |                                      |               |
| Acrylic jacket crown         | 4                                          | 9             |                                      |               |
| Formocresol pulpectomy       | 2                                          | 6             |                                      |               |
| Alveolectomy                 | 1                                          |               | 1                                    |               |
| Gingivectomy                 | 1                                          |               |                                      |               |
| Surgical extraction          | 15                                         | 24            | 8                                    | 11            |
| Surgical exposure of a tooth | 13                                         | 24            | 2                                    | 2             |
| Gingivoplasty                | 8                                          |               | 3                                    |               |
| Formocresol pulpotomy        | 107                                        | 170           |                                      |               |
| Prophylaxis                  | 14                                         |               |                                      |               |
| Alginate impressions         | 2                                          |               |                                      |               |
| Banded amalgam restoration   | 2                                          | 3             |                                      |               |
| Fraenectomy                  | 1                                          |               |                                      |               |
| Autogenous tooth transplant  | 1                                          | 1             |                                      |               |

**Follow-up analysis of 300 dental patients who received general anaesthesia** Table 4

| Patients          | Time lapse (months)<br>since initial treatment |       |
|-------------------|------------------------------------------------|-------|
|                   | Mean                                           | Range |
| Follow-up         |                                                |       |
| Treated again :   |                                                |       |
| in clinic         | 9 (10.7%)                                      | 15.6  |
| in office         | 75 (89.3%)                                     | 2-22  |
|                   | 84                                             | 14.0  |
|                   | 84 (38.6%)                                     | 1-34  |
| Not treated again | 133 (61.4%)                                    | 16.2  |
|                   |                                                | 7-51  |
| Subtotal          | 217                                            |       |
| No follow-up      |                                                |       |
| Moved             | 15 (18.1%)                                     |       |
| Never returned    | 21 (25.3%)                                     |       |
| Referred for :    |                                                |       |
| restorations      | 28 (33.7%)                                     |       |
| surgery           | 14 (16.9%)                                     |       |
| both              | 5 ( 6.0%)                                      |       |
| Subtotal          | 83                                             |       |

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### Benign and malignant erythroplasia: Report of two cases

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*Two cases of erythroplasia are reported: one which is benign and one which shows intra-epithelial carcinoma at one site and squamous cell carcinoma at another. These cases illustrate the clinical similarity and histological differences in these two types of lesions and emphasize the need for careful examination and diagnosis.*

*Deux cas d'érythroplasie sont ici étudiés: l'un des deux est bénin et l'autre montre un épithélioma intra-épithélial à un endroit et un épithélioma à cellule squameuse à un autre endroit. Ces deux cas illustrent la similarité clinique et les différences histologiques entre ces deux types de lésions. Ils permettent aussi d'insister sur la nécessité d'un examen et d'un diagnostic attentifs.*

Lesions which present histological features of intra-dermal carcinoma may manifest a variety of clinical appearances in the oral cavity. The best known example is the white patch which is often referred to loosely as leukoplakia. That white patches of the oral mucosa can present with a variety of clinical and histological features is widely known and reported in the classical works of Bhaskar,<sup>1</sup> Shafer, Hine and Levy<sup>2</sup> and Gorlin and Goldman.<sup>3</sup>

Erythroplasias, on the other hand, are considerably rarer and may pose diagnostic problems because they

can mimic an erythematous area which may be either a non-specific or specific focal inflammatory reaction.

Erythroplasia of Queyrat is a well described entity which occurs mainly on the glans penis, but has also been seen on the prepuce and vulva.<sup>4</sup> In Williamson's<sup>5</sup> report of a case occurring in the oral cavity the problem of intra-epithelial carcinomas is reviewed at length.

That a clinical lesion resembling erythroplasia of Queyrat can be histologically benign is not so widely known. Zoon<sup>6</sup> reported on eight such cases occurring on the glans penis and, because of their microscopic features, referred to them as chronic circumscribed plasma cell balanoposthitis.

#### Case reports

##### Case 1

A 39 year old married woman was referred to a periodontist in July 1970 for a slight swelling of the labial maxillary gingiva and a red patch just below the labial fraenum (Fig 1). Her dentist had noticed the lesion nine months previously; she was referred to her family physician who prescribed 12 pellets of betamethasone disodium phosphate (Betnesol) 0.1 mg. There was slight improvement for two or three weeks and then the lesion regressed. No further treatment was sought or instituted at this time.



Fig 1 Case 1: the localized erythroplastic area lying in the attached gingiva.



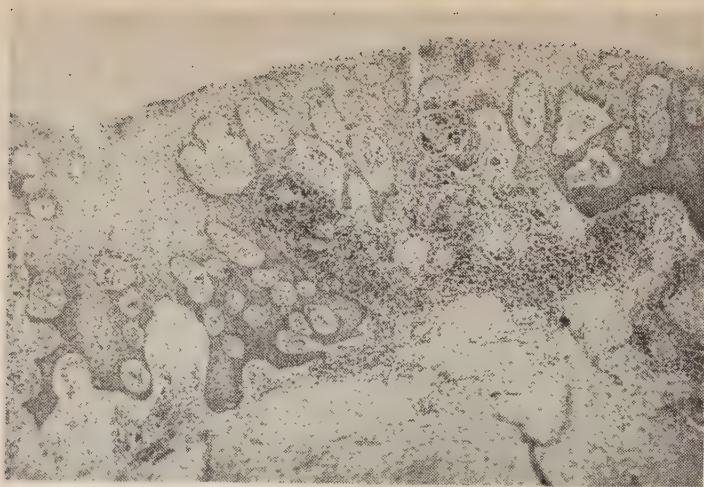


Fig 2 Case 1: the proliferating epithelium, and the inflammatory infiltrate. H.E., x 10.

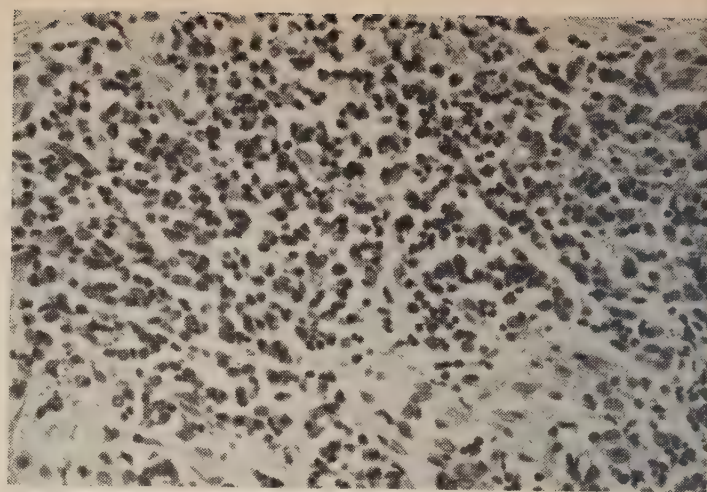


Fig 3 Case 1: the dense lymphocytic and plasma cell infiltration in the lesion. H.E., x 60.



Fig 4 Case 2: erythroplastic area of the right cheek.

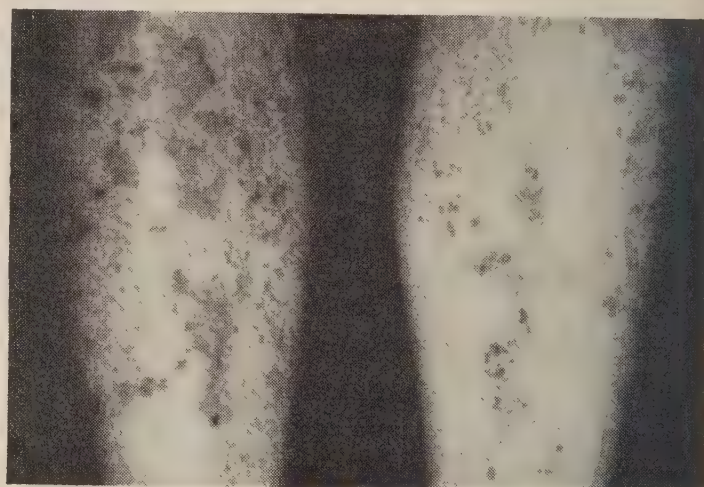


Fig 5 Case 2: the papular rash and scale-like lesions of lichen planus on the legs.

The patient had had a medical examination in 1969 and appeared in good health at that time. There was a history of an allergic reaction to penicillin which had been prescribed for a throat infection 10 years previously. In 1958 she had had an operation for endometriosis. Healing was uneventful and the treatment was successful.

The patient was taking an APC-codeine-butalbital capsule (Fiorinal-C with butalbital 50 mg, caffeine 40 mg, acetylsalicylic acid 200 mg, phenacetin 130 mg, codeine 16 mg), and oxazepam capsules (Serax) 15 mg three times daily prior to her periods to relieve headaches which coincided with her menstrual cycle. Her diet seemed normal.

Dental examination showed a well kept dentition, no active caries, moderate dental hygiene, a porcelain jacket crown on the maxillary right lateral incisor, no lesions on lips, cheeks, floor of the mouth or tongue, and no palpable lymph nodes.

The erythematous patch was on the attached gingiva between the marginal gingiva around the central incisors and the insertion of the maxillary fraenum. It was roughly oval in shape, approximately 1.5 cm wide and 0.8 cm high. There was a clear demarcation between the lesion and the normal mucosa while the floor of the affected area was erythematous

and smooth. If probed there was some bleeding and slight sensitivity to touch. The initial impression was that of a lesion associated with the fraenum. When a gingivectomy and fraenectomy were performed in July 1970, the affected area was removed with the gingiva and fraenum and the operation site was packed.

Healing was normal except in the erythroplastic area which formed granulation tissue and returned to its former appearance two months later. A biopsy was taken at this time but it was so small that a satisfactory report could not be made. Two months later the lesion was totally excised and examined histologically. Two months after excision the lesion was back to its original size and the patient was referred to a dermatologist.

**Histologic findings** — The section encompassed the entire lesion so that normal keratinized gingival mucosa could be seen on its lateral aspects. The lesion was clearly delineated by the sudden proliferation of the rete pegs into the underlying connective tissue. The overlying epithelium was non-keratinized and atrophic in most areas. The epithelial rete pegs projected into the connective tissue in broad bands and



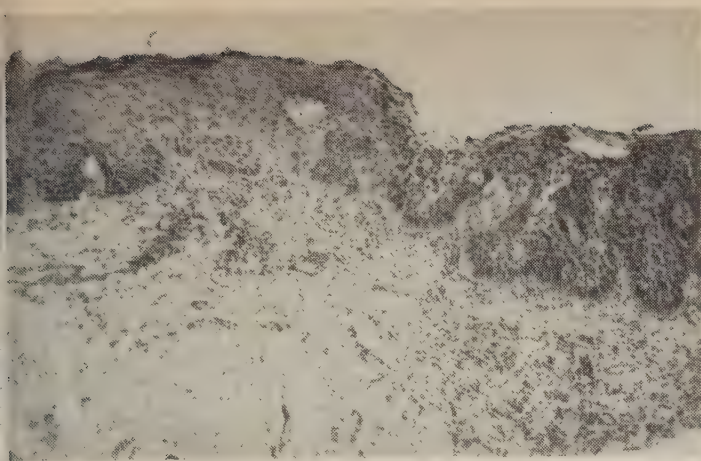


Fig 6 Case 2: the border between "normal" and oral mucosa and the area showing intra-epithelial carcinoma. H.E., x 25.



Fig 7 Case 2: the blunted and bulbous rete pegs and the disorganization of the cells. H.E., x 60.

cords with a distinct and intact basal layer (Fig 2). No mitotic figures were seen. Surrounding the bands and cords and passing close to the superficial surface was a heavily infiltrated connective tissue, the principal cells being lymphocytes, plasma cells and histiocytes (Fig 3). The lesion was demarcated on its deep aspect by a broad band of inflammatory infiltration which was sharply limited to the lesion and separate from the underlying connective tissue.

Well-formed and dilated small blood vessels were seen in the connective tissue close to the overlying epithelium. Some of the small vessels appeared to have thickened walls. No abnormal pigmentation was evident and there was no sign of haemosiderin. PAS and Gridley stains did not disclose the presence of any mycelia. A histologic diagnosis of a non-specific chronic inflammation was given.

## Case 2

A 47 year old, highly nervous, married male was referred to the dental school at the University of Manitoba in June 1971 because of an erythroplastic area in the right cheek which had failed to respond to local treatment (Fig 4).

The history of this lesion was very vague and confused despite its size. In May 1971 the patient had told the referring dentist that "it had only come on recently," but he could not give any better estimate of its age. The patient had visited his dentist at this time because of toothache. During routine visits to a dentist in St. Louis in 1966 and 1968 the patient was told that he had "leukoplakia-like lesions on both cheeks." In 1960 a biopsy from the right cheek had proved negative; this was done through a private office and we were unable to track down the original specimen. A heavy cigarette smoker, the patient had been advised to stop smoking but had not heeded the advice until June 1971. There was no particularly significant dental history as he had been receiving regular dental care.

For 25 years the patient had had a rash and scale-like lesions on both legs extending from below the

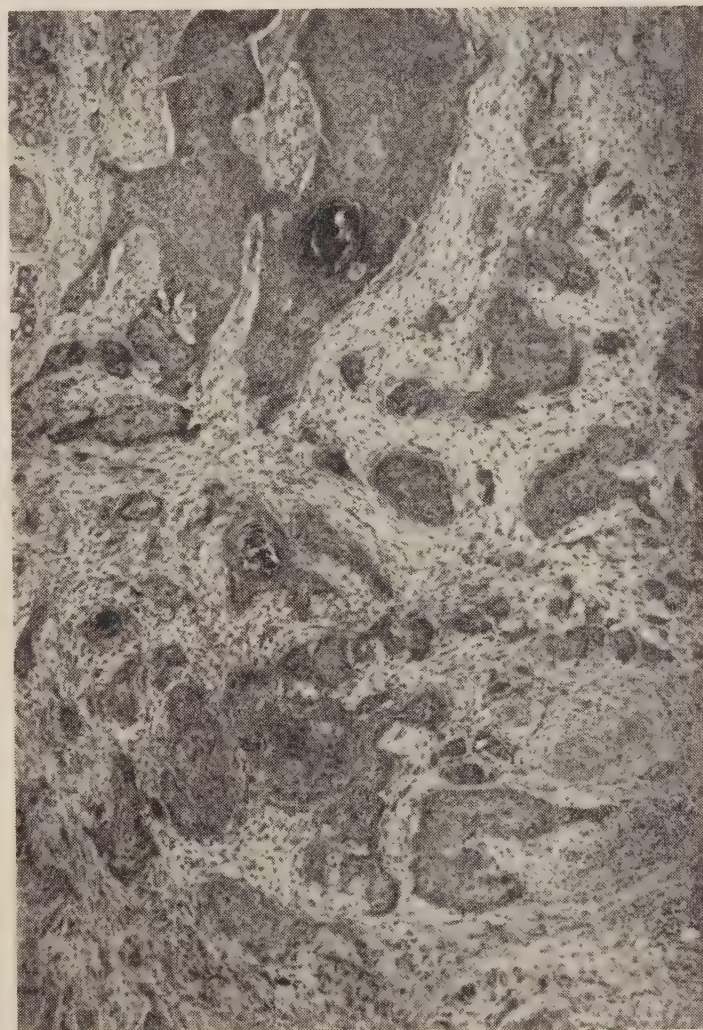


Fig 8 Case 2: frank invasive squamous cell carcinoma. H.E., x 25.



knees to above the ankles (Fig 5). At an earlier consultation a dermatologist had informed him that these lesions were untreatable and harmless.

Similar lesions occurred on the upper arms about a year previously and a Winnipeg dermatologist, diagnosing the complaint as "lichen planus hypertrophicus," had prescribed betamethazone-M-valerate 0.1 per cent cream, to be applied topically as an occlusive dressing. Within two months there was a dramatic improvement and the patient did not return for further treatment.

The principal lesion extended over a wide area of the right cheek, being about 6-7 cm long and 5-6 cm high. The leading edge was situated about 2 cm from the commissure of the lip. The superior border came within 1 cm of the vestibule. Its lower border was practically at the vestibule, passing posteriorly over the retromolar area. It had a clearly defined but irregular margin, was dull red in colour with a granular surface and bled slightly if traumatized with a gauze swab on examination. Though slightly sensitive to foods and hot and cold liquids, the lesion was otherwise asymptomatic. The patient experienced slight pain in the cheek when asked to open his mouth as wide as possible.

The surface of the lesion was smooth and its junction with normal tissue showed no particular abnormality. A single submandibular lymph node on the right side was mobile and tender to palpation.

In the left cheek there were one or two striae and a coalescence of plaques which had fused to form a hyperkeratosis. One of these was biopsied and showed hyperkeratosis, but no dyskeratosis or abnormalities in the basal layer.

**Histologic findings**—The first specimen was taken from the anterior margin of the lesion in the right cheek just above the line of occlusion. It showed at one edge a normal stratified squamous epithelium, with a granular layer and keratinization (Fig 6). The affected area was characterized by a stratified squamous epithelium, with marked keratosis in the superficial layer, a prominent basal layer and blunted, bulbous rete pegs (Fig 7). The basal layer had numerous mitotic figures, some of which were quite bizarre. There was a general disorganization of cells in what would normally be the prickle cell layer. Here the nuclei remained basically oval but showed some pleomorphism and variations in the intensity of staining with haematoxylin. Some cells were binucleate and in one area there was a well formed keratin pearl. There was no real evidence of a breakdown and invasion of the basal layer. The histologic diagnosis was intra-epithelial carcinoma and a further biopsy was obtained from the retromolar area.

The second specimen showed a frank invasive squamous cell carcinoma which was quite well differentiated in most areas. In its deepest aspect there were groups of cells which showed less differentiation, hyperchromatism and anaplasia (Fig 8).

## Discussion

The clinical appearance of the two lesions was similar in both cases, but the histologic appearance was vastly different. In neither case was an exfoliative examination performed.

The source of the lesion in the first case, though open to speculation, is suggestive of a self-inflicted injury due to habit. We are unable to confirm this, however, as the patient is unaware of any habit which may have caused the condition. In the second case it was difficult to establish how long the erythroplastic lesion existed before the biopsy was taken. It may have been there for several months, but the patient could have been unaware of its presence.

A variation in the degree of biological behaviour in the second case was revealed by the two biopsies: one taken anteriorly and one posteriorly. That could be significant from the standpoint of treatment, but we would also point out that such differences are not unexpected with the area involved. Consequently, such diffuse lesions must be examined more systematically before any treatment plan is formulated. This particular case also shows the possible danger in making a definitive diagnosis from a single biopsy.

The histologic features in the first case are obviously unusual. They require no comment other than that the only way one could arrive at a diagnosis was from an excisional biopsy. This becomes quite clear when the clinical similarity and histologic differences of both cases are compared. One is disinclined to add another name to the already over-burdened dental literature, but as long as benign erythroplasia and erythroplasia of Queyrat are recognized as separate entities and this is confirmed histologically, the diagnosis will be soundly established.

Zoon's<sup>6</sup> histologic description of the lesions on the glans penis fits closely with the histologic features found in the gingival lesion. The one exception is the type of cell infiltrate. Zoon reported a predominance of plasma cells in the underlying connective tissue, while we observed about equal numbers of plasma cells and lymphocytes. This type of cell response is seen so frequently in chronic inflammatory conditions of the oral mucosa that it caused no surprise.

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## Bending small freedoms

Liberty, wrote the French political scientist Alexis de Tocqueville a hundred years ago, is stolen away one scrap at a time. Sometimes no single scrap seems worth a fight. "The will of man," said de Tocqueville, "is not shattered, but softened, bent and guided. . . . Subjection in minor affairs . . . does not drive men to resistance, but it crosses them at every turn till they are led to surrender."

In such a fashion does government become bigger, and the individual smaller. The proposed Professions Act in Quebec brings this to mind.

In common with other governments in Canada, Quebec has from time to time delegated powers of self-rule to various professional groups by special individual acts. The new bill would modify each of those special acts to establish uniformity. Its purpose is to protect the public against fraud, malpractice and incompetence of members of the 34 professional groups named. It would centralize regulation.

What, after all, is so bad about exercising stricter control over the activities, disciplinary measures and fee schedules of these groups? Nothing really. Some may find it objectionable, but at worst it seems like a mild moral tax.

What, then, is wrong with the bill? The answer lies in its approach, which would authorize the government to place its own nominees in key positions over and within each professional group. The bill would turn Quebec's interprofessional council into a legal entity to counsel the government on the running of the professions; it would establish a three-man professions

board to oversee the ethics, finances, bill-collecting procedures and indemnity arrangements of professional groups; and for each profession it would create three-member disciplinary boards which, in all professions, would be headed by a government-appointed lawyer.

Even if government appointees should be members of the group, they would be selected by, paid by and responsible to government. That is not quite the same as being responsible to the public. It subtly shifts the burden of responsibility from members to government and its appointees.

The difference is small, perhaps even unimportant in itself. But, as de Tocqueville might have reminded us, "It must not be forgotten that it is especially dangerous to enslave men in the minor details of life."

Any man knows the restrictions of living in modern times, how a giant bureaucracy has been built up in response to massive problems, and there are few who do not chafe at the freedoms that erode under all this.

De Tocqueville feared this kind of gradual suffocation of freedoms and we think this is what was in the mind of the Hon. J. C. McRuer, a former Chief Justice of the High Court of Ontario, when, reporting as a Royal Commissioner on Civil Rights, he observed "that the professional man must retain a position of independence; he undertakes to serve but he cannot enter into servitude."

Small wonder, therefore, if some of the responsible professional bodies see Quebec's new bill in an ominous light.



## Le fléchissement des libertés mineures

La liberté, selon Alexis Tocqueville, un écrivain politique français, à l'issue d'un séjour aux Etats-Unis de 1831 à 1832, nous est dérobée morceau par morceau. Parfois, le morceau ne semble pas valoir l'effort du combat. Un "pouvoir immense et tutélaire rend tous les jours moins utile et plus rare l'emploi du libre arbitre. Il ne brise pas les volontés, mais il les amollit, les plie et les dirige; il force rarement d'agir, mais il s'oppose sans cesse à ce qu'on agisse; il ne détruit pas, il empêche de naître, il ne tyrannise point, il gêne, il comprime, il énerve, il éteint, il hébète, il réduit enfin chaque nation à n'être plus qu'un troupeau timide et industriel dont le gouvernement est le berger".<sup>1</sup>

C'est ainsi que le gouvernement devient de plus en plus prépondérant alors que la volonté de l'individu perd graduellement son importance. Le Code des professions adopté au Québec nous en fournit un exemple.

D'un commun accord avec les autres gouvernements au Canada, le Québec, par des mesures législatives particulières, a délégué, de temps à autre, à divers groupements professionnels, le pouvoir de s'autogouverner. Le nouveau projet de loi aurait pour effet de modifier chacune de ces lois particulières afin de les rendre uniformes. Il a pour objectif de protéger le public contre la fraude, la faute professionnelle et l'incompétence des membres des 34 groupements professionnels énumérés. Ainsi, la réglementation deviendrait centralisée.

En définitive, nous sommes en droit de nous demander ce que l'on peut reprocher à l'existence d'un contrôle plus sévère sur les activités, les mesures disciplinaires et les barèmes d'honoraires de ces groupements. Rien du tout, en réalité. Certains peuvent le trouver inacceptable, mais en le considérant sous son angle le plus mauvais, il apparaît comme une taxe morale plutôt légère.

Alors qu'est-ce qui ne va pas dans ce projet de loi? C'est précisément dans les mesures proposées pour aborder le problème que l'on trouvera la réponse. D'après ces mesures, le gouvernement serait autorisé à nommer ses propres représentants à des postes clés, au-dessus et à l'intérieur de chaque groupement professionnel. Ainsi, le projet de loi transformerait le Conseil interprofessionnel du Québec en une entité

légale destinée à conseiller le gouvernement sur l'administration des professions. Il établirait un conseil des professions de trois membres qui aurait la tâche de surveiller l'éthique, la finance, les procédés de perception des comptes et les modalités d'indemnisation des groupements professionnels. De plus, pour chaque profession, il permettrait de créer des conseils disciplinaires de trois membres dont la direction serait confiée, dans chaque profession, à un avocat nommé par le gouvernement.

Même si les personnes nommées étaient recrutées à l'intérieur même du groupement, elles seraient choisies et rémunérées par le gouvernement, auquel elles seraient responsables à tous égards. Cette situation n'est pas la même que celle d'être responsable devant le public. En fait, le système proposé retire subtilement aux membres la charge des responsabilités pour la confier au gouvernement et aux personnes qu'il a mandatées.

La différence peut sembler légère. Elle peut être sans importance en soi. Mais De Tocqueville aurait pu nous rappeler que "l'on oublie que c'est surtout dans le détail qu'il est dangereux d'asservir les hommes".

Personne n'ignore les restrictions que les temps modernes imposent à la vie et comment une bureaucratie gigantesque s'est édifiée pour répondre à des problèmes de grande envergure. Très peu de personnes ne se montrent pas irritées de constater que ces transformations s'opèrent au détriment des libertés.

De Tocqueville appréhendait cette suffocation graduelle des libertés et nous croyons que la pensée de l'honorable J. C. McRuer, un ancien juge de la cour supérieure de l'Ontario, rejoint la sienne quand il déclare, en qualité de commissaire sur les droits civils: "Le professionnel doit conserver son indépendance, il s'engage à servir et ne peut être mis en servitude."

De ce point de vue, il n'est pas surprenant qu'un certain nombre de groupements professionnels responsables considèrent le nouveau projet de loi du Québec sous un jour plutôt menaçant.

<sup>1</sup> Tocqueville, Alexis (de 1805-1859). De la démocratie en Amérique. Livre II, Démocratie et société (1840), chapitre VI, Démocratie et Aliénation des peuples.



*The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.*

*Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association Dentaire Canadienne. Vous êtes invités à participer à cette section du Journal.*

### Continuing education and licensure

It has become very fashionable to propose periodic continuing education as a requirement of a licence to practise. Like motherhood, the idea is beyond reproach, but some further comment seems necessary before the profession finds itself "painted into a corner."

Certainly more response should be sought from dentists before the plan is handed to the news media as a "happening." Otherwise the public may get the negative impression that dental knowledge is of very recent origin and that all dentists need to be retrained. No one would deny recent progress, but skilled dental care was not discovered in the 1970s.

G. W. Teuscher, writing in a recent issue of the *Journal of the American Society of Dentistry for Children*, offer-

ed this timely comment on compulsory continuing education: "It is education by autocratic rule and leaves no assurance at all that learning will take place or that effective changes in practice modes will occur to the subsequent benefit of the patient."

If we accept compulsory continuing education as a definite academic measure, who will rule on the ensuing qualifications? Will they apply to every licensed dentist, including deans, teachers, specialists and salaried personnel in school clinics, federal services and the armed forces?

The general impression is that a dentist must earn a set number of accredited hours every few years and report these to his licensing board. Where will this educational activity take place? It cannot be done in our present dental schools whose primary function is to train dentists.

Since it is a type of refresher instruction, will it consist of familiar and well-proven practices or will it emphasize new and startling concepts in order to hold the attention of the graduates of some years' experience?

Will dental meetings or conventions be accredited and will those attending earn credits as a shopper collects "lucky green stamps?" Attendance, like going to church, does not ensure that the information dispensed will be followed. And if it were accompanied by testing or validation, regardless of how gentle that may be, many older practitioners would find it disconcerting to be measured against recent graduates.

Has any real examination of the profession been made to determine how prevalent is the lack of knowledge? Or are we reacting with some sort of emotional chastisement to the public's criticism of fees and service? If the purpose is to correct dentists for not practising up to the level of their acquired training and education, is the proposed remedy any better than a shot-gun medication for some undiagnosed illness? Are 80 per cent of the profession being asked to make good for 5 per cent who require correction?

Whenever I question the principles of the proposal, I am told that something must be done and that the remedy will be used in a very discreet manner. When I express concern about older dentists having to subscribe to such a program, I am told that the action is not aimed at this group. Is it aimed at some other group? If so, who?

If the various dental acts and by-laws were amended so that enforcement became mandatory, it would only be a matter of time before someone tests the premise in the courts. For instance, a dentist in a rural area that is not otherwise served, and who has been licensed to practise for some years, could develop a strong legal position if his livelihood were threatened because he chose to defer continuing education or declined to abdicate his professional freedom.

Finally, little has been mentioned about the staggering expense of such a proposal. If every dentist in Canada were affected, the cost would be a product of the number of dentists, the suggested hours of education and the average hourly income of those dentists. Presumably, the individual practitioner would have to bear the main burden and the expense, while it might qualify as a tax write-off, would still remain as a cost of practice. For those on salary, it would not likely be an allowable item for income tax deduction. In the end there is only one source for paying the increased cost of dental care, and that is the public. I ask, therefore, has this issue been properly explained and is this what the public wants?

*Name withheld at author's request*

### Dental morphology of American Indians and Eskimos

The interesting article by J. T. Mayhall<sup>1</sup> (April Journal) drawing attention to the clinical importance of certain aspects of the dental morphology of American Indians and Eskimos overlooks one peculiarity of Mongoloid tooth anatomy of considerable clinical significance. Tongue-like projections of enamel from the amelo-cemental margins into the root furcations of the molars, so clearly demonstrated in his Figure 3 (see Fig 1) are to be found on all American Indians, Eskimos and Aleut Molars.<sup>2, 3</sup> These enamel projections predispose to a clinical problem, clearly evident in Figure 1. The presence of enamel on the root surface interferes with the attachment of gingival periodontal fibres to the tooth. Periodontal fibres necessarily require cementum in which to embed and the enamel projection creates a corresponding dip in the gingival epithelial attachment to the tooth crown. This dip provides an entrapment site for debris, and accordingly renders the periodontium at this site highly vulnerable to pocket formation. The ensuing



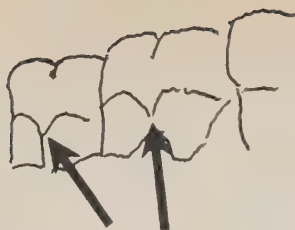


Fig 1

periodontal destruction and bone denudation of the roots is all too evident in Figure 1. Consequently, a predisposition to periodontal disease may result from the seemingly minor feature of enamel projections into molar root furcations.

Pedersen<sup>2</sup> and Turner<sup>3</sup> both found enamel projections are more frequent in the mandibular molars than in those of the maxilla of Eskimos. Both studies report that the second molar, in both maxilla and mandible, has the highest frequency of marked enamel extensions of all the molars. According to Masters and Hoskins,<sup>4</sup> 90 per cent of all teeth with isolated periodontal pockets possess enamel projections at the disease site. Their study of molar teeth of Americans of largely Caucasoid extraction revealed that 26.8 per cent of 304 mandibular molars and 17 per cent of 170 maxillary molars display enamel projections. This contrasts with the almost invariable presence of enamel projections in Mongoloid molars. Kraus et al<sup>5</sup> indicate the importance of removing these enamel projections when treating isolated periodontal pockets, and that the root surface should be polished so that healing may be facilitated.



Fig 2

One other feature of Mongoloid dental anatomy having consequences of clinical importance is the lingual hollow of shovel-shaped incisors to which Doctor Mayhall alluded. As seen in the accompanying photograph (Fig 2), American Indian children are not always free from dental malocclusion, and the prob-

lems of adapting orthodontic bands to the undulating lingual contours of these incisor teeth only add to the difficulties of the orthodontist in treating these patients!

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- 1 Mayhall, J. T. Dental morphology of Indians and Eskimos: its relationship to the prevention and treatment of caries. *J Canad Dent Ass* 38:152, 1972.
- 2 Pedersen, P. O. The East Greenland Eskimo dentition. Copenhagen, C. A. Reitzels Forlag, 1949.
- 3 Turner, C. G. The dentition of Arctic peoples. PhD thesis, University of Wisconsin, 1967. Ann Arbor, Mich, University of Microfilms, 1971.
- 4 Masters, D. H. and Hoskins, S. W. Projection of cervical enamel into molar furcations. *J Periodont* 35:49, 1964.
- 5 Kraus, B. S., Jordan, R. E. and Abrams, L. Dental anatomy and occlusion. Baltimore, Williams and Wilkins Co, 1969.

#### Dental care for the aged

In your March issue, Doctor Irwin Lightman challenged the profession to direct its attention to the oral health conditions of the aged.

During the past 20 years survey data, with recent additions by Martinello and Leake of London, Ont, have shown that oral diseases and disabilities among the retired age group are nothing short of appalling.

In the middle 1950s a national conference was convened in Regina to study and report on the health and welfare needs of the aged. Representatives from older citizens groups reported that dental care was their most common unmet need. Pursuant to the Regina meeting the federal health department set up a committee for study and action. No dentist was appointed. The dental profession took no action in the matter, to my knowledge.

I say this not to criticize our profession or the official health agencies but to bring to attention an apathetic attitude toward dental care for the aged and the handicapped which prevailed within and beyond the health agencies and the professions. From my personal observations I believe it persists.

This is only one aspect of the public's general indifference toward an age group whose socio-economic importance to our society has been depreciated by enforced retirement at an arbitrarily fixed age, with resultant financial and participatory restrictions. A continuing minimal public and political concern is assured by the group's lack of strong, vocal, national or provincial organizations capable of exerting upon society the kind of pressures exercised

by unions and other types of articulate organizations.

We, in common with the rest of society, are able to neglect them almost with impunity. A reflection of this social attitude is seen in government policies which pay little more than lip service to the obvious basic needs of the silent aged and handicapped. Concurrently, government programs pay for food, housing, travel, welfare, better pay and even euphoria for the vocal, demanding young and vigorous. Organized sound and fury outweigh, defeat and even aggravate silent want.

There is another consideration. For too long the unmet dental needs of older people have invited exploitation by unqualified practitioners. In two provinces the invitation has been accepted and ratified. Mechanics' denture services are being quickly expanded to include other services. In British Columbia the profession has responded with denture clinics. These are commendable but inadequate to meet the variety of services required—and not directed to the right goals.

New, imaginative and courageous approaches are needed. There are potential resources which await exploration and evaluation. Goals await definition. Success will depend as much upon attitudes as upon techniques, dental and managerial. The answer cannot be found in historic and traditional precedents.

The task is not the sole responsibility of organized dentistry, but sparking the action is its responsibility. That in itself is no small task. *Tuum est!*

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*Professor Baume's Paper (CDA National Convention) — Readers who desire a copy of the summary and references to the paper, "Clinical Management of Endodontic Problems Based on New Histopathological Evidence/Les traitements endodontiques basés sur les données histopathologiques nouvelles," which was presented by Professor L. J. Baume at the CDA national convention in Montreal, should address their requests to: The Editor, Canadian Dental Association, 234 St. George St, Toronto 180, Ont.*





W. G. McIntosh, DDS

### National co-ordinating agency for accreditation in the health fields

"Accreditation" is becoming a rather familiar topic for discussion on this page. We're going to look at it again this month, but in a somewhat different context.

Recently, the Association received a proposal from Doctor M. LeClair, Deputy Minister of National Health, outlining the concept of a national co-ordinating agency for accreditation in the health fields. It was clearly a draft proposal, suggesting possible objectives for such an agency and a prospective list of organizations and groups (the CDA being one) to be represented on the agency. A number of specific questions relating to the accreditation concept were also included in the draft.

The Association was invited to comment on the proposal and to provide answers to the related questions. Apparently, this material is to provide the groundwork for a future meeting at which the philosophy of a national co-ordinating agency in the health fields will be discussed, along with methods of implementation.

The idea of a national co-ordinating agency which encompasses all aspects of health care is new and could be significant with respect to future accreditation programs in dentistry where the Association is already heavily involved. These include the accreditation of undergraduate dental and dental hygiene programs, graduate and postgraduate dental programs in specialty areas recognized by the CDA, hospital dental services, hospital intern and residency programs, and dental assisting programs.

The possibility of this new thrust in health accreditation strikes me as being of sufficient importance to warrant keeping the dental profession informed as ideas and plans develop.

The suggested role of the agency, as outlined in the draft proposal, would be to serve the public interest by:

—Encouraging the development of nation-wide standards for educational programs established for

those persons who provide health services with a view to influencing the level of minimum qualifications required by graduates of the programs, achieving portability of qualifications and credits and improving the services provided.

—Encouraging the development of nation-wide standards for health service programs with a view to influencing the quality of services provided.

—Acting as a co-ordination focal point among the agencies now involved in or responsible for accreditation with a view to developing processes of measuring and recognizing the attainment of approved standards (accreditation), capitalizing on the factors of economy, efficiency and effectiveness.

—Reviewing the objectives of accreditation in the health education and service fields with a view to assessing requirements in the longer term and developing proposals to meet these requirements.

During its recent meetings in Montreal, the Executive Council approved a reply to Doctor LeClair calling for additional dental representation on the co-ordinating agency, should it come into being.

### Emblem for dentistry in Canada

In the May issue of the Journal I informed you that the emblem for dentistry in Canada, approved by the Board of Governors in 1968, had been entered in the FDI competition for an international symbol of dentistry.

Our submission received honourable mention and was among the six finalists selected from a long list of entries. However, it did not make the final list of three submissions from which the FDI General Assembly will make its choice during the World Dental Congress to be held in Mexico this October.



# THEY'RE OFF...

## ... and running, thanks to the special skills of a Brantford dentist

If you happen to be a harness racing fan, you'll know that the horse that runs a mile in two minutes is destined to be a winner.

Speed is the name of the game and everyone connected with the sport strives, in his own way, for the "miracle mile." Trainers and drivers concentrate on getting the best possible performance from their charges during the race itself, while others are continuously working in the background to improve the breed and to develop harder, faster tracks.

Unfortunately, this emphasis on breaking the two-minute mile coupled with the advent of harder tracks has resulted in an increase in the incidence of "quarter cracks" or hoof fractures among standard bred horses.

And if you happen to own a race horse, you'll know that a hoof fracture means you can say goodbye to any dreams you may have of sharing the winners' purse for about a year. It takes six months for the horse to grow a new hoof and another six to get him in shape before he'll be ready to take part in the strenuous competition of harness racing.

Some have tried to beat this long layoff period with a repair job. But the success ratio for hoof repair has generally been very poor. Until recently, that is. New techniques are currently being developed which are changing the odds in favour of a successful repair.

John Nikiforuk, a dentist with a busy practice in Brantford, Ontario, is one of the men involved in developing a successful repair technique. His interest in the problem was a direct result of his interest in horses and harness racing and it began about three years ago when he and a friend bought their first horse.

"A month after we bought the horse," Doctor Nikiforuk explained, "he cracked a hoof. Before he made a nickel for us! We went to a veterinarian for advice and he advised us to allow a six-month layoff for re-growth.

"I read a lot about horses and literature on the repair process was available. The similarity between this problem and many dental problems was striking. In fact, the principles involved almost made me think I was reading G. V. Black: gain access; debridement; extension for prevention; dovetailing and undercutting. Add to these the principle of pins for immobilization and fixation and the problem was theoretically solved.

"I convinced my trainer to agree to the repair and within a week "Silly Boy" was racing again. And he made money that year."

### Demand for "house calls"

Although Doctor Nikiforuk's interest in the art and science of hoof repair first developed as an attempt to find a solution to a personal problem, it wasn't too long before he found it necessary to branch out in this rather unique aspect of his practice. A short time after



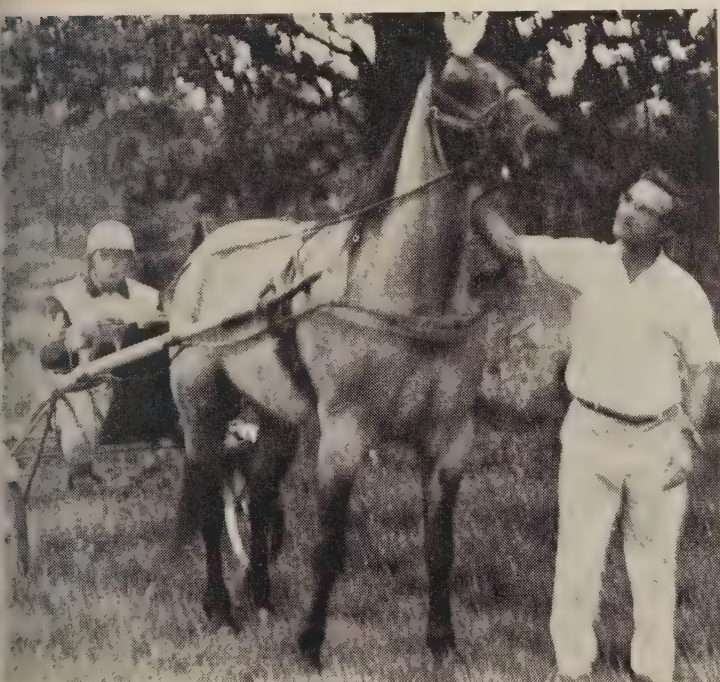
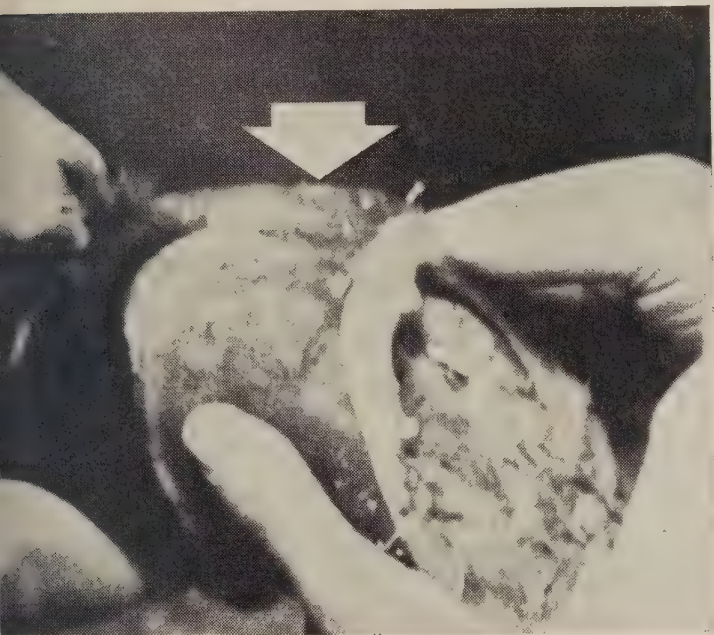
John Nikiforuk, Brantford, notes that the recent repair of a quarter crack suffered by "Masquerader's Boy" is holding well. Jacqueline Virag, groom and wife of trainer/driver Louis Virag, assists with the check-up.

he patched up his own horse, the same veterinarian he had consulted about the fractured hoof — a man also vitally interested in horses and harness racing — happened to see him at the training grounds and noted with some consternation that Doctor Nikiforuk apparently planned to race his horse despite the cracked hoof. When the repair job was explained to him the vet asked if a similar repair could be performed on one of his own horses. Doctor Nikiforuk agreed and the vet ended his year \$12,000 richer.

Since then, Doctor Nikiforuk estimates he has performed about 25 hoof repairs. One of his more notable "house calls" came from Ross Curran, a top driver in



harness racing, for hoof repairs on two horses. Bonus Boy was one of these horses and went on that same year to net \$26,000. When the owner of Bonus Boy took him to Buffalo, he suffered another hoof fracture and Doctor Nikiforuk was called down to repair it. Another interesting call came from a paedodontist in Rochester who had heard of Doctor Nikiforuk's technique and asked if he would explain how it was done. It seems his uncle had a horse with a cracked hoof.



(Top) This close-up of the left, front hoof shows the area where quarter cracks commonly occur in pacers. The repair process used by Doctor Nikiforuk basically involves cleaning the area of debris and filling it with a flexible material developed by a dental supply firm. The filling is kept in place by means of a copper wire attached to each side of the hoof bordering the crack.

(Bottom) "Masquerader's Boy" gets a final word of encouragement from his owner, John Nikiforuk, just before trainer/driver Louis Virag takes him out for a pre-race trial.

Doctor Nikiforuk has improved his technique with experience.

"When I first started out," he explains, "I felt lucky if the repair lasted through a couple of races. Now they last till they grow out. The reason my first repairs were only marginally successful was the fact that I used a brittle material. The material I'm using now is flexible. In fact, it was developed by a dental supply firm to the specifications of a veterinarian in Pennsylvania who is famous for his hoof repair work.

"There are two main factors you must keep in mind when carrying out this type of a treatment. The first is to allow for the flexibility of the hoof itself. And the second is to keep in mind the force exerted when a 1,000 lb horse is hitting the hard ground at 30 miles an hour.

"As for the actual mechanics of the technique, it is really quite similar to filling a cavity in a tooth. I have a mobile dental drill which I use specifically for this purpose and I first clean the area of any debris and then fill it. The filling is kept securely in place by means of a copper wire which is attached to each side of the hoof bordering the split to form a staple. This approach results in a fairly broad rectangle of copper, which has just the right amount of flexibility, joining the two sides of the hoof to the centre of the filling."

No anaesthetic is needed for this procedure. However, Doctor Nikiforuk warns, great care must be taken to ensure that the vital structures are kept comfortable.

### The pacers' plague

Fractured hooves could well be termed the pacers' plague. Certainly pacers are far more prone to this ailment than thoroughbreds, probably because the pacers have to run at an unnatural gait. A horse's natural instinct is to gallop, distributing a more even force to the hooves, but pacers must pound their hooves so hard that the pounding tends to break at any weak spot or defect in the hoof. Also, thoroughbreds generally race on a soft turf, whereas the pacers must cope with very hard track. In fact, Doctor Nikiforuk estimates that approximately 70 per cent of hoof fractures occur in winter when tracks are frozen.

### Horsemen sceptical of repairs

To fully appreciate the success of Doctor Nikiforuk's avocation, it is necessary to realize the scepticism with which horsemen have traditionally regarded the subject of hoof repair.

One of Canada's most successful harness racers recently stated that he had seen close to 200 repair jobs and none were successful.

What does the future hold for Brantford's "hoof and mouth specialist?"

"As far as the horses are concerned," says Doctor Nikiforuk, "I really enjoy working with them and the problem of hoof repair has been challenging. Someday I hope to do a very famous horse — like Albatross.

"The present technique, although effective, is not sophisticated. The ultimate would be a plastic inlay cemented into the line of fracture with a super cement. Hopefully, some research-minded vet or dentist will solve this problem."



# Dentistry in the news

## The Association

### CDA War Memorial Essay Competition winners honoured

Perry Goldberg of McGill University, Montreal, and G. G. Morrison of the University of British Columbia, Vancouver, have won this year's awards in the CDA War Memorial Essay Competition. The \$200 first prize went to Mr. Goldberg, and Mr. Morrison won the \$100 second prize.

The title of the 1971-72 competition was "Iatrogenic Factors in Periodontal Disease/Les facteurs iatrogènes des maladies périodentaires."

The competition, which is open to undergraduates in the final year at Canadian dental schools, has been sponsored for the past two decades by the Canadian Dental Association. The prizes are provided from interest received from the War Memorial Fund to which contributions were made by Canadian dentists in memory of colleagues who died in the two World Wars.

## Canada and the Provinces

### Four Science Fair winners honoured by CDA

Betty Carpick and Linda Perry of Lynn Lake, Man, both grade 9 students and joint exhibitors, and Doug Gourlay and Gary Brown of Aurora, Ont, both grade 11 students and joint exhibitors, have won the two Canadian Dental Association awards given at the Eleventh Canada-wide Science Fair held at the Sarnia Collegiate Institute and Technical School, May 9-13. This year's selections were made on behalf of the CDA by T. K. Storey of Sarnia.

The Canadian Dental Association is one of the sponsors of the Youth Science Foundation which promotes extra-curricular science activities and organizes the annual fair. The CDA cash awards of \$100 each are accompanied

by offers of assistance in locating research material for future projects.

### Ottawa curbs vitamin advertising

The federal government has moved to place stricter controls on radio and television advertising for children's vitamin products. The new regulations came into effect June 1.

Five guides have been developed by officials of the Health Protection Branch of the Department of National Health and Welfare. Advertisements must not:

- Exaggerate expected benefits from the vitamin product nor portray its taking as a "fun thing" or the "grown-up thing to do."

- Imply that all persons need vitamins.

- Depict children taking the medication on their own.

- Create pressure on children to urge parents to buy the products to get special premiums.

- Use nationally-known persons or characters in the presentation of children's vitamin products.

Advertisements for all products covered by the Food and Drug Act must be approved by the federal health department before they are aired.

### Northwest Territories to get dental therapist school

Canada's first school for dental therapists will open in the Northwest Territories in September, it has been announced.

The school, a joint federal and territorial government project, will be established at Fort Smith.

In charge of the new school is K. W. Davey, professor of paedodontics at the University of Toronto, who is on loan to the Department of National Health and Welfare.

The dental therapy course will last two years. Doctor Davey hopes to have 12 students in the first class.

Legislation to authorize dental therapists to work in the Territories was passed at the 1971 summer session of the Territorial Council.

A principal goal of the new program is to resolve one of the Territories' major health care problems. There are only three full-time dentists for a population of 33,000 spread over an area of 1,300,000 square miles—a third of Canada. Organizers of the project hope the dental therapists, working under the direction of a dentist, will fill a serious gap in getting regular dental health care into the northern settlements.

A major objective is to try to involve the native student. This is the first opportunity that the Indian, Eskimo and Metis people have had of learning a profession in their own country and then going out to work among their own people.

### Saskatchewan to train dental nurses in September

The first dental nurses for Saskatchewan's proposed child dental care program will begin training in September, it has been announced.

Education Minister Gordon MacMurchy and Health Minister Walter Smishek said in a joint statement May 24 that the initial enrolment will be about 35, expanding to 60 or 75 as the program develops.

Legislation to permit the use of dental nurses was passed at the last session of the legislature.

The training program, a two year course, will be provided in Regina as part of the health sciences program at the new Institute of Applied Arts and Sciences.

When the program is in full effect, about 175 dental nurses will be employed to deliver basic dental care to children under the age of 12. The first dental nurse is expected to be working by the fall of 1974.

## International Items

### Periodontology academy slates San Diego meeting

Canadian dentists have been invited to the scientific meeting of the American Academy of Periodontology October 25-28 at the Town & Country Hotel in San Diego, California.

In addition to sessions on health care delivery and evaluation of therapy, the program this year offers two full afternoons of continuing education featuring 21 courses. Dentists may attend two courses of their choice, each lasting a full afternoon, upon payment of a \$10 continuing education registration fee. Advance registration is required.

(Continued on page 238)



## YOUR SECURITY

*This is the third of a series of articles on insurance and investment programs available through the dental profession.*

The variety of investments made by the CDA Retirement Savings Plan has resulted in Canadian dentists being able to choose a retirement savings program keyed to their own income and needs.

Under recently enacted changes to federal tax legislation, up to \$4,000 can be invested tax free annually in registered retirement savings plans.

Because these funds can be deducted from your earnings before taxes, it means you are investing dollars which cost you only 50 cents if you are in the 50 per cent tax bracket. Of course, the retirement pension you eventually draw will be subject to whatever taxes prevail at that time.

How much of a lower income? Or, put another way, how much pension should an independent professional plan for in order to maintain a reasonable standard of living and to enjoy his years of retirement in comfort and security?

Most experts questioned in this field will quickly point out that you'll need a larger income than you think. Gone are the days when one could comfortably retire on one-quarter or one-fifth of their working income. Authorities now estimate you should plan your savings and pension programs to produce incomes up to 60 to 75 per cent of your working income.

An exception can be made in cases of exceptionally high net incomes such as \$30,000 or more but, by and large, one's retirement needs are greater now than ever. While it is true that the years of major expense, such as raising and educating children or buying a home are past, retirement living cannot be carried comfortably without an adequate pension.

Although one's home may be paid for, property taxes could easily run to \$1,000 or \$1,200 per year on an average home. Life styles have changed to the point where retired persons now remain active and have no wish to forego pleasures of travel, hobbies, recreation or outside entertainment. Health care has improved at the same time, making it easier for the retired to live at a tempo closer to that which they maintained during their working years. All this makes retirement more expensive.

While the future level of such government programs as the Canada Pension Program and Old Age Security cannot be predicted (although they will inevitably be increased as time goes on), it is safe to assume that government security alone will not be sufficient to satisfy the material or emotional needs of a retired professional.

Cash savings should be largely discounted because not many people put aside funds in this manner and, if they do, they're not especially wise because it means they're investing after tax dollars and receiving fairly minimal interest.

On a long term basis, stocks of major industrial corporations are virtually assured of growth, although again the investment must be made in after tax dollars. In addition, the new capital gains tax means a further rake-off by the taxman when the stocks appreciate in value.

There are numerous other types of individual investments ranging from first and second mortgages to property investment, land development, or participation in a small business as a sideline. All have their attractions, although all tend to be somewhat speculative and, especially in the case of a small business, time-consuming. Many professionals seek to include such an activity in their investment program, however, because of the challenge offered by a business undertaking.

The advantage of a CDA Retirement Savings Plan, which is administered by the Royal Trust Company, is that your contributions are invested in a variety of stock and bond programs so as to minimize risk, and that what you earn on your investments is accumulated, also tax free, until retirement. At that point you should purchase a lifetime annuity. The amount the annuity pays you each year will then be taxed at regular income tax rates.

This kind of plan pays surprisingly high benefits. For example, a \$2,000 annual contribution starting at the age of 30 would earn a male retiring at 65 an annual income of \$35,180. Some other examples based on the same contribution:

Starting at age 35, annual retirement income of \$24,040. At age 40, annual retirement income of \$16,100. Started at 45, the plan would produce an annual income after 65 of \$10,440, at 50, \$6,400.

Bear in mind that these figures are based on annual contributions of \$2,000, only half the total permissible contribution.

Earnings can be withdrawn at any time whether or not you are still working, but the most effective use of a retirement savings plan is to produce a pension on retirement.

A dramatic example of the value of the retirement savings plan over ordinary investments can be made between two men who in the 50 per cent tax bracket can invest \$4,000 per year from the age 40 to 65.

One man, investing \$4,000 of tax free dollars in a retirement savings plan, will build a portfolio worth \$508,000 based on 3 per cent annual yield and 8 per cent annual growth. The man who went it alone will have had only \$2,000 left per year to invest after having had \$2,000 taken off the top for taxes. His portfolio, assuming the same growth rates, will be worth only \$145,500 at retirement.

Both men would then purchase annuities at 65. The man with the retirement savings plan would be able to buy a \$51,000 per year annuity which, after taxes, would give him a net annual income of \$29,238. The other man would only be able to buy an annuity of \$15,000 which, after he paid his \$1,000 annuity tax, would give him a net income of \$14,000 yearly.

Both men have reduced their incomes by exactly the same amount for 25 years, yet the man with the retirement savings plan ends up with a pension more than twice that of the man who has followed an individual savings plan.

*Next: How to plan your estate.*



Course titles include the following: Alveolar Bone: Physiology and Response to Trauma and Pathology; Occlusal Adjustment; The Role of Adult Tooth Movement in Periodontal Therapy; Biologic and Pathologic Considerations Fundamental to Selection of Periodontal Therapy; Behavioural Motivation; Wound Healing after Periodontal Surgery; Drugs in Dental Practice; The Management of Patients with Occlusal, Restorative and Periodontal Problems; and Pulpal-Periodontal Problems.

Registration fee to non-members is \$50 (not including continuing education registration fee). Reservation forms and program information are obtainable from the American Academy of Periodontology, Room 924, 211 East Chicago Ave, Chicago, Ill 60611, USA.

## Dental Organizations

### Give the public a new deal, ODA president says

Ontario residents should have a dental bill of rights that would allow properly trained dental technologists to fit, as well as make dentures, but only under the supervision of a dentist, according to the outgoing president of the Ontario Dental Association.

Such a policy if adopted, L. J. Schiller told delegates to the ODA annual convention May 17, would ensure that all dental treatment done in the province would be top quality. It would prevent dental mechanics from dealing independently with the public.

"The government is still turning a blind eye . . . permitting unqualified people to bootleg their services to all comers," Doctor Schiller said. "We therefore call on the Department of Health to impose, without further delay, rigid standards in all fields of dentistry."

The Windsor dentist proposed a one year course for qualified dental technicians "to provide dental prosthetic services to the public under the supervision of a dentist, and to vigorously weed out those who do not qualify."

"By letting this situation drift, the government has been derelict in its duty to ensure that the consumer is as well protected in his selection of health services as in his selection of soap, deodorants or corn flakes. The public must have the right to this protection."

Doctor Schiller had scathing comments for "the critics who lie in wait at every turn to bemoan the poor state of dental health in Ontario (yet) perversely attack the only people who are doing anything to try to meet the problem—the dentists."

He reserved the bulk of his criticism for the Ontario government. "As dedicated professionals endeavouring to do our best to serve the public, I feel the time has come to speak out and say 'enough.' It is time to stop kicking the dentist around and put the blame where it belongs, squarely on the shoulders of government," he said.

He called for immediate enactment of legislation to establish a children's dental care plan, and the 900 guests loudly applauded his call for immediate legislation for mandatory fluoridation of public water supplies throughout the province.

Doctor Schiller also called for a massive campaign to educate the public about dental disease and more educational facilities to train auxiliary dental personnel.

### ODA board endorses low cost denture services

The Board of Governors of the Ontario Dental Association, meeting May 12-13, passed a resolution encouraging the establishment of subsidized, low cost, complete denture services and adopted a "Statement of Principles on the Operation of Low Cost Denture Services."

The ODA governors deferred until their fall meeting a proposed 6.6 per cent increase in the ODA fee schedule.

Noting serious disparities between different municipalities, the board members also called for a comprehensive report on the administration and payment of dental services for recipients of public welfare assistance.



W. L. Heaslip

W. L. Heaslip, Toronto, was elected president of the Ontario Dental Association, succeeding L. J. Schiller of Windsor. R. L. Moran, Toronto, was named president-elect.

Other members of the Executive Council are M. D. Charendoff, Toronto; N. L. Diefenbacher, Kitchener; J. E. Durran, Hamilton; R. K. Federchuk, Oakville; J. A. Guest, London; P. R. Shunock, Toronto; and S. P. Smith, Thunder Bay.

Representatives to the CDA Board of Governors are D. C. Clee, Toronto; W. C. Deacon, Ottawa; J. E. Durran, Hamil-

ton; H. N. Jolley, Toronto; Ivan Hrabowsky, St. Catharines; D. L. Rife, Toronto; and L. J. Schiller, Windsor.

### Doctor McKee elected president of Toronto academy

Recent elections by the Toronto Academy of Dentistry resulted in the appointment of D. M. McKee as president for the 1972-73 term. He succeeds M. A. Kamienski.

Other officers elected were Bernard Crystal, president-elect; W. S. McKenzie, secretary; and R. S. McKegney, treasurer.

D. M. McKee



Herbert Ptack

### Doctor Ptack heads Mount Royal Dental Society and Montreal Alpha Omega

Herbert Ptack has been elected president of the Mount Royal Dental Society and the Montreal Alumni Chapter of Alpha Omega Fraternity. He succeeds A. S. Wainberg.

Also elected were: M. P. Tenenbaum, vice-president; L. L. Prosterman, corresponding secretary; F. I. Muroff, recording secretary; E. M. Hershenfield, treasurer; Ezra Kleinman, associate treasurer; William Klein, editor; and David Zacharin, archivist.

### Oral pathologists elect officers

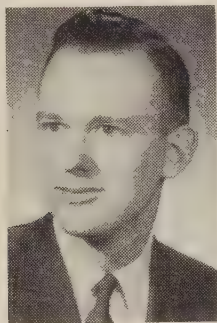
D. G. Gardner, chairman of the Division of Oral Pathology, University of Western Ontario, has been elected president of the Canadian Academy of Oral Pathology, succeeding H. A. Hunter of Toronto.





The Canadian Fund for Dental Education's Board of Trustees approved more than \$100,000 in awards at its April 1972 meeting. Members attending the session were (from left) W. G. McIntosh, CDA executive director; M. J. Crompton, M. G. Boyes, M. J. Lipkind, C. E. Peirce, Sheppard Margoless, Harold Hillenbrand and J. W. Neilson.

Other officers elected by the academy are: K. A. McMurchy, Edmonton, president-elect; A. G. Racey, Montreal, vice-president; W. G. Young, Halifax, secretary; and H. M. Dick, Edmonton, treasurer.



D. G. Gardner

the dental profession, business and industry.

CFDE's total income at the close of 1971 reached \$103,988 compared to \$90,846 in 1970.

The annual appeal to the dental profession, boosted by the "October is CFDE Month" campaign, brought personal contributions by dentists of \$31,609 — a 21 per cent increase over 1970. Contributions from business and industry rose by 28 per cent — from \$27,972 in 1970 to \$35,917.

#### Awards exceed \$100,000

At its April meeting, the CFDE Board of Trustees approved awards totalling \$100,150 — an all-time record. The awards will be used to fund a wide range of programs designed to advance the science and practice of dentistry. They will be distributed as follows:

- Teacher training and research fellowships for the 1972-73 academic year — \$60,300;

- Seventh Biennial Canadian Conference on Dental Education and Research, June 12-14, 1972 — \$9,900;

- Survey of postgraduate and graduate dental programs in Canadian schools — \$5,000;

- Student table clinic program at the Canadian Dental Association's national convention — \$4,000;

- Dental auxiliary scholarships and bursaries — \$3,000;

- Canadian Dental Association's Council on Research (Committee on Standards for Dental Materials and Devices — \$1,250;

- Fourth Annual Canadian Dental Students Conference — \$4,200;

- Unrestricted grants to all Canadian dental schools — \$12,500.

#### New appointments at Western

Three appointments at the Faculty of Dentistry, University of Western Ontario, have been announced. They are R. I. Brooke, Axel Ruprecht and Lt.-Col. P. S. Sills.

Doctor Brooke will join the staff of Western's Faculty of Dentistry in August as professor and chairman of the De-

partment of Oral Medicine. He is presently senior lecturer and head of the Department of Oral Medicine and Pathology at Leeds University Dental School and Hospital, England.

A 1957 dental graduate of the University of Leeds, Doctor Brooke was awarded his degree in medicine from the same university in 1963. In 1964 he was appointed clinical assistant in dental surgery at Leeds School of Dentistry and a year later became lecturer in clinical dental surgery.

In 1970 Doctor Brooke served as a visiting professor in the Department of Oral Diagnosis, Clinical Pathology and Radiology at the State University of New York, Buffalo, and as university associate in dentistry at the Buffalo General Hospital. A year later he returned to Leeds where, in addition to the appointment he now holds, he was made consultant dental surgeon to the United Leeds Hospitals.



R. I. Brooke

Axel Ruprecht has been named assistant professor in the Division of Radiology. A native of Germany, Doctor Ruprecht graduated from the University of Toronto's Faculty of Dentistry in 1968 and was awarded his master's degree in dental radiology from the same university in June, 1972.

Lt.-Col. Sills will join Western's Faculty of Dentistry this month as associate professor in the Division of Removable Prosthodontics. A 1950 dental graduate of the University of Toronto, he received his diploma in prosthodontics from the US Naval Dental School in 1959 and the basic sciences diploma awarded by the US Army Institute of Dental Research in 1961. From 1964 to 1966 he served as a resident in prosthodontics.

## Dental Education

### Nine dentists earn Royal College fellowships

The Royal College of Dentists of Canada has conferred fellowships on nine dentists in recognition of their achievements in various dental specialties. The ceremony was held in a convocation June 5 during the Canadian Dental Association national convention in Montreal.

Receiving fellowships were Guy Maranda, Quebec; G. K. Hurd, Kitchener, Ont; J. H. Gryfe, Weston, Ont; R. L. Moran and H. Phillips, Toronto; E. Marks, North Vancouver, BC; P. H. Trestler, Vancouver, BC; D. L. Catena, Hartford, Conn; and G. E. Longhurst, Los Angeles, Calif.

### Profession boosts CFDE income rise

Difficult economic conditions notwithstanding, the Canadian Fund for Dental Education wound up the year 1971 with a 15 per cent increase in total income over 1970 — thanks mainly to efforts of



dontics at the Walter Reed Army Medical Centre.

Lt.-Col. Sills has served in numerous dental clinics in Canada, Korea and Egypt and was an instructor in prosthodontics at the Canadian Forces Dental Service School at CFB Borden, Ont, from 1962 to 1964. He is presently chief instructor in prosthodontics at the CFB Borden School.

## CDA Retirement Savings Plan

Unit values of the Canadian Dental Association Retirement Savings Plan stood as follows on May 31, 1972:

*Fixed Income Fund* \$12.881;

*Common Stock Fund* \$28.268.

Total assets (market value) of the plan were \$13,401,769.60.

The following portfolio purchases and sales occurred during the preceding month: bought 10,000 shares Industrial Acceptance Corp, 1,500 shares Hudson Bay Oil and Gas, 5,000 shares Dominion Foundries and Steel and 3,000 shares Canadian Cable Systems; sold 2,000 shares Molsons A.

Section 146(5) of the Income Tax Act permits tax free contributions of up to 20 per cent of earned income or \$4,000, whichever is less, to a personal retirement savings program.

The Royal Trust Company, trustee of the CDA Retirement Savings Plan, offers two separate investment media: a fixed income fund and a common stock fund. Contributions may be allocated wholly or partly to the funds of the contributor's choice. Transfers between funds are allowed without penalty.

The fixed income fund, confined to guaranteed government bonds, other guaranteed fixed income securities, debentures, preferred shares and other fixed income securities, offers excellent income with maximum security. The common stock fund, comprising Canadian and carefully selected American and other foreign stocks, has capital growth as its main objective.

No charges or commissions are payable on joining or withdrawing from the plan.

For further information please write to CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto 180, Ont.

## Economics

### Politician-dentist speaks out on mechanics

Dentists attending the Ontario Dental Association convention May 14 heard an appeal from one of their members that dental mechanics should be accepted as auxiliaries. Speaking to the

Ontario Chapter of the Canadian Society of Dentistry for Children, H. C. Parrott, a Woodstock orthodontist, gave qualified support to a brief which dental mechanics had submitted to the Ontario government last year.

Doctor Parrott, who was elected a Conservative member of the Ontario Legislature last October, noted that the mechanics had recommended "very rigid controls" over the qualifications and training for their members. "Their proposal that future mechanics take two years of practical training and two years of theoretical training is too much," he observed.

"Frankly, I doubt if it takes four years to train a mechanic," he said, adding that the training could be done in two years, one each of practical and theoretical instruction.

Doctor Parrott warned his listeners that to meet a situation in which "far more dentistry goes untreated than treated" they will have to rely on more auxiliary help, including mechanics. "We must accept them," he said, "but we obviously must set up formal programs of training and also legalize the expanded role that they could play in providing services."

Doctor Parrott made it clear that he is completely opposed to the mechanics' method of obtaining their results. He also disagrees with their proposal that all those now operating should not have to undergo training and testing but should be automatically licensed by the government.

In an interview, he said the present mechanics should undergo a practical test and also be required to take a year of theoretical training before being licensed.

In other areas he praised the Ontario Dental Association's dental health plan for children but criticized the association for proposing initial coverage to age three with subsequent extension to older children a year at a time.

Doctor Parrott said this proposal would take up to 15 years from the date the plan was accepted until it would care for the school children of the province. "This to me is completely unacceptable. It's much too slow," he said.

### Alberta service corporation adds new group plans

Renewal of a contract for prepaid dental care for employees of the Retail Meat Industries has been announced by the Alberta Dental Service Corporation.

A former \$500 maximum benefit has been removed from the new contract and an orthodontic option has been added. This option pays beneficiaries on the basis of 50 per cent of the Alberta Dental Association suggested fee guide up to a maximum of \$750 per child.

Two new groups have been added to those already covered by the ADSC.

They embrace employees of the General Paint Corporation of Canada and IGA Stores.

### Ontario medical specialists may get restricted licence

Physicians who are specialists may soon have a restricted, instead of the general licence now given to practise medicine, it was announced recently.

Joseph Dawson, registrar of the Ontario College of Physicians and Surgeons, said the college is working out a computer program to handle the restricted licences.

Under the plan, a physician who is a specialist like a psychiatrist will be issued with a licence to practise psychiatry. He will not be given the general licence.

### Continuing dental education required by six states

Six US states now have continuing dental education as a requirement for relicensure, according to the *ADA Leadership Bulletin* published by the American Dental Association. The six states with relicensure provisions for continuing education are: Kansas, 30 hours every three years; Kentucky, 20 points every two years; Minnesota, 40 hours every five years; North Dakota, 20 hours every five years; Pennsylvania, completion of one course and/or attendance at a scientific meeting of a dental organization every two years; and South Dakota, 20 hours every five years.

With one exception, the states which require continuing education for relicensure have the provisions specified in dental practice acts. In Kansas, however, the requirements are enforced through state board regulation without specific acts.

Enabling legislation for continuing education requirements has been passed in three other states - California, New Hampshire and Oklahoma.

Four state societies - Arizona, Colorado, Nevada and Washington - have some measure of continuing education requirements for maintaining membership.

## Research

### New resin seals fluoride onto teeth

Scientists at the Forsyth Dental Centre, Boston, have developed a new sealant that prolongs concentration of fluoride and apparently deters caries.

Teeth in the mouths of 50 patients, aged 11-18, were pretreated with an



acid phosphate fluoride solution applied with a fluoridator tray, each arch being treated separately.

The sealant was applied with a small brush onto all surfaces of the clinical crowns of the teeth on one side of the mouth. Contralateral teeth were left unsealed. Total pretreatment and treatment required about 30 minutes, the researchers said.

Post-fluoride-treatment biopsies were taken of sealed and unsealed teeth at one, six, nine and 12 months for comparison of fluoride levels.

The sealed teeth showed consistently higher fluoride concentrations, the scientists found. Three new carious lesions were found on the sealed side compared to 15 new lesions on the unsealed side after the six month examination. The total number of molars and bicuspids in each group examined for caries was 264.

### Phosphoric acid enhances protection from fluoride applications

A single one minute application of a phosphoric acid solution followed immediately by a fluoride solution causes a greater reduction of decay in children's teeth than does an application of fluoride alone.

This is one of the recent findings reported by scientists working at the Forsyth Dental Centre, Boston. They found that brief etching with dilute (0.05M) phosphoric acid enables enamel to absorb and retain a great deal more fluoride from all the fluoride salts they tested. They found less decay and detected no harm to the teeth from this short exposure to phosphoric acid.

They also found that a three minute application of an acidic ammonium fluoride solution (pH 4.4) more than doubled the amount of fluoride remaining two weeks later in surface enamel, as compared with a similar treatment with sodium fluoride. Other combinations of fluoride salts under less acidic conditions were not as effective.

### Awards and Appointments

**A. J. Calzonetti** recently succeeded W. J. Gregus as president of the Hamilton Academy of Dentistry.

**C. R. Hill** of Saskatoon was recently elected president of the College of Dental Surgeons of Saskatchewan, succeeding A. W. Geisthardt of Regina.

Toronto Academy of Dentistry President **M. A. Kamienski** was the guest of honour at a recent dinner tendered by the academy council. This annual event marks the termination of tenure of the preceding year's president.

Many distinguished members of Toronto's dental community were in attendance. They included J. H. Johnson, former editor of *Oral Health* and the *Journal of the Ontario Dental Association*; Murray Cornish, past international president of Alpha Omega Fraternity; S. A. MacGregor, former chairman of the Department of Paedodontics, University of Toronto; E. T. Guest; T. R. Marshall; R. W. Marshall; Frank Martin; H. W. Reid; L. M. Grose; M. G. Boyes; J. G. Chalmers; W. A. Weir; J. A. Bigelow; A. E. Histrop; M. G. Hardy; G. M. Marshall; B. J. Levin and G. C. Stirling.

Other academy officers present were President D. M. McKee, B. J. Crystal, W. S. MacKenzie, H. A. Ferguson, Paul Chapnick, R. S. McKegney, Murray Wagman, J. G. Linghorne, R. S. Anco, Gordon Perlmutter, T. G. Joyner, E. S. Walker, R. A. Worling and G. J. Chong.

### Deaths

Ben Ezra, Isaac Meyers. 79. Windsor, Ont. Royal College of Dental Surgeons of Ontario, 1920. 23-4-72. Survived by his wife, two daughters and one son.

Cheney, Percy Jack. 78. Vancouver. North Pacific College, University of Oregon, 1925. 10-5-72. Survived by Roseanne (wife), two sons, one brother, one sister and three grandchildren. Associate member CDA.

Covey, George. 81. Islington, Ont. Royal College of Dental Surgeons of Ontario, 1914. 30-5-72. Survived by Beulah (wife); Col. G. Ross Covey (son); Michael (grandson); Mrs. Thomas Martin and Miss Ella G. Covey (sisters). Associate member CDA.

Cross, Sydney. 70. Los Angeles, Calif. Royal College of Dental Surgeons of Ontario, 1926. 23-4-72. Survived by Mabel (wife).

Frappier, Irenée. 67. Chateauguay, Qué. Université de Montréal, 1928. 6-4-72.

Giguere, Henry Camille. 67. Noranda, Que. McGill University, 1932. 3-5-72.

Sullivan, Charles Archibald. 66. Sydney, NS, Dalhousie University, 1929. 8-4-72. Survived by Florence (wife); Hon. Allan (son); Russell (brother); Mrs. A. E. F. Dauphinee (sister); and five grandchildren.

Walker, Robertson Roy. 86. Toronto. Royal College of Dental Surgeons of Ontario, 1909. 5-5-72. Survived by Audrey (wife); Doctor George R. (son); Mrs. E. E. Huff and Mrs. N. V. Martin (daughters); and 10 grandchildren.

Woollatt, Robert Sidney. 87. Toronto. Royal College of Dental Surgeons of Ontario, 1909. 10-5-72. Survived by Grace (wife) and Mrs. Arthur Laemel (daughter).

## In Memoriam

### R. Sidney Woollatt

R. Sidney Woollatt, Toronto, died on May 10, 1972, at the age of 87.

Doctor Woollatt graduated from the Royal College of Dental Surgeons of Ontario in 1909 and then moved to Montreal to take charge of the infirmary at McGill University's Faculty of Dentistry. The following year he returned to Toronto and set up a practice in association with the late Dean Albert E. Webster.

He was on the staff of the University of Toronto's Faculty of Dentistry from 1910 to 1954, taking time out to serve in the Canadian Army Dental Corps from 1916 to 1921. During the Second World War he assisted the Royal Canadian Dental Corps with its course for dental technicians.



R. S. Woollatt

Doctor Woollatt was president of the Toronto Academy of Dentistry in 1927-28 and was elected president of the Ontario Dental Association in 1937. He also served as chairman of the ODA's Benevolence Committee for many years. Upon his retirement, he was appointed professor emeritus, University of Toronto.

An honorary life member of the University of Toronto Faculty Club, Doctor Woollatt was also awarded an honorary life membership by the Ontario Dental Association in 1968.

He is survived by his wife, Grace, and a daughter, Ruth.



l'application topique de solutions de fluorures. Le dentiste conservera la responsabilité de tous les soins dispensés dans son cabinet.

Le docteur R. L. Ellis de la Faculté dentaire de l'université de Toronto, qui préside le projet de l'ADC, compte

avoir recueilli suffisamment de données statistiques après deux ans, pour démontrer si un dentiste est susceptible de traiter un plus grand nombre de patients quand son hygiéniste et son assistant effectuent plus de tâches de ce genre.

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## LA QUATRIEME ENQUETE NATIONALE DE L'EXERCICE DENTAIRE AU CANADA

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### L'économie

#### L'Ontario met à l'épreuve le programme d'extension des fonctions des hygiénistes

Les fonctions des hygiénistes dentaires prendront de nouvelles dimensions en clientèle privée, comportant l'insertion des obturations dans les dents préparées par le dentiste, au cours d'un projet d'essai mis en oeuvre sous les auspices de l'Association dentaire de l'Ontario.

Cette étude se prolongera durant deux années et mettra à l'épreuve la technique d'équipe appliquée aux soins dentaires, en accordant des fonctions plus étendues aux hygiénistes dentaires et aux assistants dentaires.

Le programme se poursuivra dans 16 cabinets dentaires et recevra une subvention de \$125,721 du Health Resources Development Plan de l'Ontario.

Dans huit cabinets dentaires, les hygiénistes et les assistants dentaires assumeront certaines responsabilités réservées jusqu'ici aux dentistes. Leur travail sera comparé à celui d'auxiliaires, formés selon le programme actuel, et à l'emploi de huit autres cabinets dentaires.

Douze hygiénistes et autant d'assistants suivront des cours d'été spéciaux à la Faculté dentaire de l'université de Toronto et du Community College George Brown de Toronto, afin de s'y préparer en vue de l'accroissement de leurs responsabilités professionnelles.

Les hygiénistes seront formés à mettre en place et à retirer les digues de caoutchouc et les bandes matrices ainsi qu'à obturer les dents préparées antérieurement par le dentiste. Les assistants assumeront certaines responsabilités confiées aux hygiénistes, comprenant l'éducation des patients, la préparation des radiographies dentaires et

#### Hausse du revenu brut par heure de travail effectif

Selon la dernière enquête de 1968 sur la profession dentaire, la moyenne du revenu brut que le dentiste enregistre pour chaque heure passée à traiter un patient se situe à \$27.84. Il s'agit d'une hausse de 66 p.c. si l'on compare ces chiffres à ceux de l'enquête de 1963.

Cependant pour chaque heure passée en pratique privée, soit au fauteuil dentaire, soit au laboratoire, ou encore s'occupant de fiches techniques ou administratives, le dentiste gagnait en moyenne un revenu net de \$12.53 l'heure. Ceci représente une hausse de 58 p.c. sur les chiffres de 1963.

En d'autres termes il en coûte \$28 au patient qui passe une heure dans le cabinet dentaire, mais pour chaque heure passée à travailler, le dentiste gagne \$12.50 avant l'impôt et les déductions personnelles.

Cette augmentation de deux-tiers dans les revenus bruts n'est pas supportée par le patient seul. Si la hausse des honoraires compte pour beaucoup dans l'augmentation des revenus bruts, la productivité accrue du travail des dentistes compte aussi beaucoup.

Les gains bruts par heure de travail effectif auprès du patient furent les plus élevés en Alberta où ils atteignent \$33.26, puis viennent la Colombie-Britannique, la Saskatchewan et l'Ontario, avec des moyennes de l'ordre de \$30. Ce sont les dentistes du Québec qui font piètre figure dans le tableau avec seulement \$21 l'heure. Le revenu net suivait le même modèle variant de \$15 en Alberta à \$9 au Québec.

#### 38 p.c. des dentistes se déclarent trop occupés

Dans l'enquête de 1968 sur la profession dentaire, on demanda à chaque dentiste de choisir parmi les affirmations qui suivent celle qui semblait correspondre le mieux à leur degré d'affairement dans le cabinet dentaire:

1. Trop affairé pour traiter tous les patients qui désirent un rendez-vous.

2. Trop affairé seulement à certaines périodes du jour ou de l'année.

3. A traité tous ceux qui avaient pris rendez-vous, mais s'est senti trop bousculé et/ou a travaillé pendant plus d'heures que prévu.

4. A traité tous ceux qui avaient pris rendez-vous, et avait assez, mais pas trop de patients.

5. N'a pas travaillé à plein rendement, mais ne désirait pas de patients supplémentaires.

6. Aurait pu prendre plus de patients.

Le plus fort pourcentage de dentistes, 38 p.c., déclarèrent être trop affairés pour traiter tous les patients qui désiraient un rendez-vous. En seconde place avec 23 p.c. viennent les dentistes qui déclarèrent pouvoir traiter tous ceux qui avaient pris rendez-vous et avaient assez mais pas trop de patients. Seize pour cent déclarèrent traiter tous ceux qui avaient pris rendez-vous mais se sentaient trop bousculés ou travaillaient plus qu'ils ne le désiraient alors que 9 p.c. dirent qu'ils auraient pu prendre plus de patients.

Sept pour cent affirmèrent qu'ils étaient trop affairés à certaines périodes du jour ou de l'année seulement, et un autre 7 p.c. dirent qu'ils n'avaient pas travaillé à plein rendement mais ne souhaitaient pas traiter d'autres patients.

#### Un cas pour "la libération de la femme"

Les femmes qui travaillaient à plein temps en pratique dentaire ou en pratique à temps complet en plus d'un travail salarié à temps partiel enregistraient des revenus comparables à leurs collègues masculins pour l'année 1968, c'est du moins ce que nous révèle l'enquête sur la profession dentaire menée dernièrement par l'Association Dentaire Canadienne.

Cependant on nota une différence entre les revenus moyens et les revenus médians accordés aux dentistes masculins et aux membres féminins de la profession occupant un emploi salarié à temps complet. Dans ce cas précis les hommes gagnaient en moyenne \$1,000 de plus que les femmes par année.



**Echec du projet de loi des techniciens dentaires en Nouvelle-Ecosse**

Les techniciens dentaires de la Nouvelle-Ecosse ont perdu l'occasion de voir reconnaître leur statut légal alors que l'assemblée législative de cette province a voté contre la présentation du projet de loi en deuxième lecture, le 24 avril dernier. C'est la seconde fois en trois ans que ce projet de loi subit la défaite.

Bien que 14 membres sur les 24 qui commentèrent le projet de loi y étaient favorables, en principe, et réclamaient certains changements majeurs que pouvait apporter le comité des amendements à la loi, le vote libre donna le coup de grâce à la mesure.

**Les organismes dentaires**

**Le docteur Rosen président des endodontistes**

Le docteur Samuel Rosen, de Hamilton, Ontario, a été nommé président de la Canadian Academy of Endodontics au cours de la réunion annuelle de cet organisme, tenue à Montréal du 13 au 16 avril, conjointement avec celle de l'American Association of Endodontists. Il succède au docteur Isadore Wolch, de Winnipeg. Le docteur E. C. Aho, de Toronto a été élu président désigné tandis que le docteur P. R. Dow, de Vancouver, continuera d'assumer les fonctions de secrétaire-trésorier.

La circonstance souligne la première réunion de l'AAE tenue à l'extérieur des Etats-Unis et une assistance record participe à un programme bien organisé.

La prochaine réunion du CAE sera tenue en octobre 1973 à Vancouver, conjointement avec le congrès national de l'Association Dentaire Canadienne.

**Chronique internationale**

**Canadiens invités au Congrès de Pédiodontie de Paris en 1973**

Les dentistes canadiens ont été invités au quatrième Symposium international sur la Santé dentaire de l'enfant qui sera tenu à Paris. Le congrès tiendra ses assises du 10 au 13 juillet 1973 à la nouvelle Faculté de médecine, 45 rue des Saints-Pères, dans le 6<sup>e</sup> arrondissement.

Les principaux thèmes de la réunion portent sur le traitement préventif et prophylactique de la carie dentaire chez l'enfant, les problèmes de l'éruption dentaire et les lésions aux dents et aux gencives chez l'enfant.

Le français et l'anglais seront les deux langues officielles du Congrès et les congressistes auront à leur disposition le service de l'interprétation simultanée dans les deux langues.

On obtiendra de plus amples renseignements en s'adressant au docteur G. Château, Secrétaire, Société française de Pédiodontie, 33 rue Poissonnière, 75 Paris (2<sup>e</sup>), France.

**Santé publique**

**Le programme des cliniques d'été reçoit une subvention de \$200,000**

L'Université de Montréal et l'Université McGill ont reçu du gouvernement du Québec une subvention se montant à près de \$200,000, pour le programme des cliniques dentaires d'été destiné aux enfants des familles économiquement faibles de Montréal.

L'Université de Montréal reçoit \$128,000 et McGill \$65,000. L'an dernier ces deux universités se partageaient un octroi de \$130,000 aux mêmes fins.

Le programme des cliniques dentaires d'été est organisé par les étudiants, sous la surveillance des étudiants récemment diplômés et du corps professoral. Elles ont pour objectif l'amélioration de la santé dentaire des enfants des familles économiquement faibles de Montréal.

L'Université de Montréal a aussi mis sur pied un programme de soins dentaires pour les adolescents de 13 à 15 ans. Le programme se propose d'apporter aux jeunes à prendre soin de leurs dents.

**La recherche**

**Une brosse à dents spéciale diminue la sensibilité à la chaleur**

Des scientifiques américains ont mis au point une brosse à dents spéciale qui génère un courant électrique de faible intensité et qui contribue à réduire la sensibilité de la dent aux variations de la température.

Dans un article publié récemment dans le *Journal of Periodontology*, ils estiment que le courant électrique entraîne la pulpe à former une couche protectrice secondaire de dentine, qui isole les nerfs des variations thermiques.

Ils ont mis à l'épreuve la propriété des dentifrices aux fluorures et non fluorurés de réduire la sensibilité de la dent, quand ces substances sont appliquées par le brossage accompagné ou non de l'effet d'un courant électri-

que. Les courants à faible intensité sont utilisés pour certains traitements médicaux dans le but de produire une concentration plus élevée d'ions spécifiques (en l'occurrence les ions fluor) lesquels traverseraient, en l'absence de cette concentration, la barrière constituée par la membrane.

Cent dix sujets reconnus comme manifestant, de longue date, une hypersensibilité aux variations thermiques furent répartis, au hasard, en quatre groupes qui furent soumis à 30 jours de traitement. Le premier groupe se brossa les dents en utilisant un dentifrice contenant du fluorure stanneux et une brosse de nylon ordinaire. Le second utilisa un dentifrice similaire ne contenant pas de fluorures mais firent usage d'une brosse à dents spéciale munie d'un ruban d'étain d'un côté et de magnésium de l'autre. Ces éléments rendent la brosse susceptible de produire un courant galvanique imperceptible et inoffensif. Le troisième groupe utilisa à la fois le dentifrice au fluorure et la brosse à dents modifiée, alors que le groupe contrôle n'utilisa que des produits inactifs.

Une sonde thermoélectrique produisant une chaleur variable est alors appliquée, à raison d'un degré à la fois, au niveau gingival et les sujets signalent le moment où la douleur se fait sentir.

Le traitement limité aux fluorures ne produisit aucune désensibilisation significative, mais l'effet du courant électrique, avec ou sans fluorures, réduisit considérablement la sensibilité au froid.

La sensibilité à la chaleur, qui se manifeste chez moins de personnes que la sensibilité au froid, se produisit aussi, mais à un degré moindre.

Après un mois, près de 70 pour cent des sujets utilisant la brosse spéciale et le dentifrice ordinaire présentèrent une amélioration, alors que plus de 30 pour cent se déclarèrent complètement guéris.

**Les savants mettront à l'épreuve l'efficacité anticariogénique d'une substance à scellement et d'un colloïde au fluorure**

Des scientifiques du département de la Santé, de l'Education et du Bien-être des Etats-Unis, préparent une étude qui analysera l'effet combiné de deux mesures qui sont censées améliorer la prévention contre la carie chez les enfants. Ils appliqueront une substance à scellement peinte sur les surfaces occlusales des molaires et prémolaires des enfants et demanderont à ces mêmes enfants de procéder eux-mêmes à l'application d'un colloïde à base de fluorure sur leurs dents.

C'est la première fois qu'on analysera les effets du colloïde et d'une substance à scellement au fluorure en mê-





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me temps. Selon un représentant du gouvernement, les deux traitements peuvent être donnés par des auxiliaires compétentes. Si donc ces deux traitements combinés se révèlent plus efficaces qu'un seul, cette méthode permettra aux dentistes de diagnostiquer et de traiter plus de patients qu'auparavant.

Dans une première étape, toutes les dents cariées seront restaurées chez 800 enfants âgés de cinq et six ans. Puis 400 enfants subiront une application de méthacrylate de méthyl-méthacrylate de biphenol A-glucidyl peint sur les surfaces occlusales de leurs molaires et prémolaires. La couche sera polymérisée par une courte exposition à la lumière ultra-violette. Les mêmes enfants devront ensuite utiliser un colloïde au fluorure de phosphate acidulé qu'ils appliqueront sur leurs dents 10 minutes par jour pendant 10 jours consécutifs. Aux examens annuels, la substance de scellement sera appliquée si elle s'est usée et sera de toute façon appliquée sur les dents nouvelles.

On utilisera les 400 autres enfants comme groupe témoin. On pourra alors comparer le taux des caries dentaires, le nombre de dents restaurées, et le coût du traitement. Les résultats devraient démontrer l'efficacité de ces mesures préventives en hygiène buccale et par le fait même s'il y a quelques dollars à épargner dans le coût des soins dentaires pour les enfants qui bénéficient de la substance de scellement et du colloïde au fluorure.

## VOTRE SECURITE

*Cet article est le troisième d'une série traitant des programmes d'assurance et de placement disponibles aux membres de la profession dentaire.*

La variété des formes de placements de fonds prévus par le régime d'épargne-retraite de l'ADC permet aux dentistes canadiens de choisir un régime d'épargne-retraite approprié à leurs revenus et à leurs besoins.

La promulgation de certains amendements à la loi de l'impôt fédéral autorise des placements jusqu'à concurrence de \$4,000 annuellement, sans imposition fiscale, dans des régimes d'épargne-retraite reconnus.

Comme ces fonds déduits de votre revenu sont exempts d'impôt, vous investissez des dollars qui ne vous coûtent, en réalité, que 50 cents, si vous appartenez à la classe imposée à 50 pour cent. Il est bien entendu toutefois que la pension de retraite que vous retirerez éventuellement sera soumise à l'imposition fiscale en vigueur à ce moment-là.

Sur quelle proportion de votre revenu actuel devez-vous compter? C'est-à-dire quel montant de pension, un membre d'une profession libérale indépendant doit-il prévoir pour maintenir un niveau raisonnable de vie et jouir d'une retraite confortable et sans risques?

La plupart des experts consultés dans ce domaine répondront aussitôt qu'il vous faudra disposer d'un revenu plus élevé que vous ne le croyez. Les temps sont révolus où l'on pouvait espérer prendre une retraite confortable en ne disposant que du quart ou du cinquième de son revenu antérieur. Aujourd'hui les autorités en la matière estiment qu'il faut prévoir un programme d'épargne-retraite susceptible de rapporter un revenu équivalent à 60 ou 75 pour cent de celui de sa période active régulière.

Sauf, pour les revenus exceptionnellement élevés, de l'ordre de \$30,000 ou plus, il faut considérer que, dans l'ensemble, les besoins que le régime de retraite doit satisfaire sont plus élevés que jamais. Tout en admettant que les années de dépenses majeures, comme celles que l'on consacre à élever et à faire instruire des enfants ou à acheter une maison, soient maintenant passées, il n'est pas possible de vivre confortablement durant les années de retraite sans disposer d'une pension appropriée.

En admettant que la maison soit entièrement payée, il faut quand même compter que les taxes municipales peuvent atteindre facilement \$1,000 ou \$1,200 par année, pour une maison moyenne. De plus, le mode de vie a changé au point qu'aujourd'hui les retraités demeurent actifs et n'ont aucune envie de renoncer aux

## Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 31 mai 1972:

Fonds à revenu fixe \$12.881;

Fonds d'actions ordinaires \$28.268.

L'avoir total (valeur marchande) du régime se montait à \$13,401,769.60.

Au cours du mois précédent, les transactions ont été les suivantes: achat 10,000 actions de Industrial Acceptance Corp, 1,500 actions de Hudson Bay Oil and Gas, 5,000 actions de Dominion Foundries and Steel et 3,000 actions de Canadian Cable Systems; vente 2,000 actions de Molsons A.

Le paragraphe 146(5) de la loi régissant l'impôt sur le revenu autorise des contributions non imposables à un pro-



plaisirs du voyage, de la récréation, des distractions extérieures ou à ceux d'avoir un passe-temps. En même temps, les soins de santé se sont améliorés et il est plus facile aujourd'hui, pour le retraité, de vivre à un rythme qui s'apparente beaucoup plus à celui de la période active. Tous ces changements rendent la période de retraite plus dispendieuse.

Bien que le niveau éventuel futur des programmes gouvernementaux, comme ceux des pensions et de la sécurité de la vieillesse, soient impossibles à prédire (ils augmenteront toutefois inévitablement avec le temps), il semble raisonnable de prétendre que les mesures de sécurité prévues par le gouvernement ne suffiront pas à satisfaire aux besoins matériels et affectifs des membres retraités des professions libérales.

L'épargne en espèces est à déconseiller. En effet, très peu de gens économisent de cette manière, et quand ils adoptent cette méthode, ils ne font pas preuve de sagesse, puisqu'ils investissent des dollars réduits par les impositions fiscales, et ne reçoivent de plus qu'un intérêt plutôt minime.

A long terme, l'accroissement des valeurs des principales sociétés industrielles est virtuellement assuré, bien qu'une fois encore l'investissement comporte des dollars réduits par l'imposition fiscale. De plus, le nouvel impôt sur les gains de capital réclame des prélèvements additionnels quand la valeur des placements augmente.

Il existe plusieurs autres types d'investissements individuels comprenant des placements en première et deuxième hypothèques sur la propriété, l'exploitation de la propriété foncière ou la participation à l'exploitation de petits commerces, comme occupation secondaire. Toutes ces formes d'investissements possèdent leurs attraits particuliers, en dépit de leurs tendances plutôt spéculatives. De plus, elles absorbent beaucoup de temps, surtout quand il s'agit d'exploiter de petits commerces. Toutefois, plusieurs membres des professions libérales cherchent à inclure des activités de ce genre dans leur programme d'investissement à cause du défi que présente l'entreprise commerciale sous toutes ses formes.

Le Régime épargne-retraite de l'ADC, dont l'administration a été confiée au Trust Royal, a l'avantage de vous permettre d'investir vos contributions dans une variété de valeurs et d'obligations, afin de minimiser les risques tout en accumulant les gains réalisés sur vos investissements, sans imposition fiscale, jusqu'à l'heure de la retraite. Le moment sera alors venu de vous porter acquéreur d'une rente viagère. Les versements de cette rente seront alors imposables d'après les taux d'impôt réguliers en vigueur.

Ce genre de régime rapporte des bénéfices remarquablement élevés. Prenons, par exemple, l'investisse-

ment d'une contribution annuelle de \$2,000 débutant à l'âge de 30 ans. Ce placement garantit au retraité masculin de 65 ans, un revenu annuel de \$35,180. Voici quelques exemples basés sur la même contribution:

En débutant à l'âge de 35 ans, le revenu annuel, à l'âge de la retraite, se chiffrerait à \$24,040. A 40 ans, le revenu garanti par la pension de retraite s'établirait à \$16,000. A 45 ans, le régime en question rapporterait un revenu annuel de \$10,440 après l'âge de 65 ans, et à 50 ans le revenu atteindrait \$6,400.

Il faut aussi tenir compte du fait que ces chiffres sont basés sur une contribution annuelle de \$2,000, ce qui ne représente que la moitié de la contribution totale permise.

Bien que les sommes investies puissent être retirées en tout temps, que vous pratiquiez encore ou non votre profession, l'application la plus efficace du régime d'épargne-retraite trouve sa raison d'être particulière dans la réalisation d'une pension de retraite.

Afin de donner un exemple frappant de la valeur du Régime d'épargne-retraite, par rapport à celle de placements ordinaires, considérons deux individus de la même classe, imposés à 50 pour cent, qui investissent \$4,000 annuellement de 40 à 65 ans.

La premier investit \$4,000 non imposables dans un régime d'épargne-retraite, qui lui garantira un portefeuille d'une valeur de \$508,000 basé sur un intérêt annuel de 3 pour cent, plus 8 pour cent d'accroissement annuel. Le second, qui a pris seul en mains la responsabilité de ses intérêts, ne disposera que d'une somme de \$2,000 annuellement, après la déduction de \$2,000 en impôt. En appliquant les mêmes taux d'accroissement, son portefeuille ne représentera qu'une valeur de \$145,500 au moment de la retraite.

Supposons toujours que les deux individus se portent acquéreur de rentes viagères à l'âge de 65 ans. Celui qui aura souscrit au régime d'épargne-retraite pourra se procurer une rente de \$51,000 annuellement. Après les déductions d'impôt, cette rente lui rapportera un revenu annuel net de \$29,238. L'autre individu ne pourra se procurer qu'une rente de \$15,000. Après le versement de la taxe de \$1,000 sur la rente, ce dernier ne disposera que d'un revenu net de \$14,000 annuellement.

Remarquez que les deux individus ont réduit leurs revenus annuels de montants exactement identiques durant 25 ans. Malgré cela, celui qui a souscrit au Régime d'épargne-retraite bénéficie d'une pension plus de deux fois plus élevée que celle de l'individu qui a choisi d'organiser personnellement son propre programme d'épargne.

*Prochain article:* Comment projeter la gestion de vos valeurs immobilières.

gramme de retraite personnelle, représentant jusqu'à 20 p.c. du revenu, avec un maximum de \$4,000.

La Compagnie Trust Royal, qui gère le Régime d'épargne-retraite de l'ADC offre deux sortes de placements distincts: un fonds à revenu fixe et un fonds d'actions ordinaires. Les contributions peuvent être faites entièrement ou en partie au(x) fonds que choisit

le contributeur. Il peut faire des transferts entre les fonds sans payer d'amendes.

Le fonds à revenu fixe, qui se compose de bons du trésor, d'obligations, d'actions privilégiées et d'autres sécurités à revenu fixe, offre un très bon revenu avec un risque très faible. Le fonds d'actions ordinaires, qui se compose d'actions ordinaires canadiennes,

américaines et étrangères soigneusement choisies, a comme objectif principal l'augmentation du capital.

L'adhésion au programme ou le retrait n'entraîne aucun paiement supplémentaire, ni commission.

Pour de plus amples renseignements, veuillez écrire à: CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto 180, Ont.



# Current dental research in Canada

*In the following eight annotations the Journal presents short sketches of significant dental research currently underway in Canada. Each annotation is condensed from a report presented by the respective author at the Seventh Biennial Canadian Conference on Dental Research and Education. The conference was held June 12-14, 1972, at Geneva Park, Ontario. The Journal expresses appreciation to conference participants who provided these annotations. The Journal also welcomes comments from readers with a view to improving the usefulness of such presentations to the profession.*

## Dental materials

### Cavity bases under amalgam

*J. M. Gourley and D. E. Rose, Dalhousie University, Halifax*

Observations of extracted teeth have indicated that cavity bases can wash out totally or may remain as a disintegrated mass under amalgam restorations. This study was designed to observe the state of three base materials: a zinc phosphate cement, a polycarboxylate cement and a calcium hydroxide base under amalgam. Compressive and tensile strengths of the materials were measured and their solubilities were determined.

Using extracted teeth, Class I cavity preparations were made and restorations of amalgam were placed over each base which had set for seven minutes. The thickness of the bases were 0.5 and 1.5 mm. In half of the samples the base material was exposed with a bur and all were stored in distilled water or citric acid for periods of one week to six months. The sectioned teeth were observed microscopically and the bases were examined for hardness and ease of disintegration.

In all the samples none of the base material had been displaced in condensing the amalgam at either thickness. However, calcium hydroxide exposed to aqueous or citric acid showed softness and disintegration after one week. Both the thin and a thick base of calcium hydroxide were softened.

With the sealed samples no softness occurred with zinc phosphate or polycarboxylate bases but the calcium hydroxide was softened at the margin under the amalgam. Only after three and six months was slight softness observed for the exposed zinc phosphate and polycarboxylate bases.

## Collagen and bone

### Collagenase: A new assay

*M. T. Gisslow and B. C. McBride, University of British Columbia, Vancouver*

A rapid, sensitive collagenase assay has been developed using  $^{14}\text{C}$  acetylated collagen. Acid soluble collagen, extracted from foetal calf skin, was solubilized in 1 per cent acetic acid and the pH adjusted to 8.0. Collagen was acetylated at  $10^\circ\text{C}$  by the slow dropwise addition of a solution of acetic-1- $^{14}\text{C}$  anhydride in benzene. Contaminating  $^{14}\text{C}$ -acetic acid was removed from the acetylated protein by dialysis. Standard solutions of substrate were prepared by solubilizing acetylated collagen (1 mg/ml) in 0.01 per cent acetic acid. For assay purposes the substrate was neutralized with 0.5M Tris buffer, mixed with *Cl. histolyticum* collagenase and incubated at  $37^\circ\text{C}$  for 30 minutes. Total assay volume was 0.3 ml. Controls were run substituting buffer or 100 micrograms ( $\mu\text{g}$ ) of trypsin for collagenase. After incubation, undigested acetylated collagen was quantitatively precipitated by addition of phosphotungstic acid and hydrochloric acid (HCl). A 0.1 ml aliquot of the supernatant was measured for soluble  $^{14}\text{C}$ .

Collagenase released approximately 70 per cent of the counts added, and trypsin released 6 to 8 per cent of the counts. The latter compares with similar results reported for the  $^{14}\text{C}$  glycine collagenase assay.<sup>1</sup> No counts were released when buffer was substituted for the enzyme. Other proteolytic enzymes tested released negligible amounts of radioactivity, indicating that the collagen molecule was not denatured by acetylation. Collagenase activity was linear with respect to increasing enzyme concentration.

This study was supported by Medical Research Council Grant No. MA 4434.

1 Nagai, Y., Lapiere, C. M. and Gross, J. Tadpole collagenase preparation and purification. *Biochemistry* 5:3123, 1966.

### Associations of acid mucopolysaccharides with normal gingival collagen fibrils in the rat molar periodontium

*J. M. Plecash, University of Alberta, Edmonton*

Radiographic, histochemical and biochemical studies have added greatly to the knowledge of the formation and identification of the acid mucopolysaccharides (AMPS) of the periodontal ligament. However, information is lacking at the electron microscopic level as to



the morphological patterns formed by acid mucopolysaccharides in association with periodontal collagen fibrils.

Previous electron microscopy studies of connective tissue ground substance in areas other than the periodontal ligament in various species have demonstrated the existence of definite morphological patterns of AMPS closely associated with collagen fibrils.

The purpose of this investigation was to determine if similar morphological patterns of AMPS also exist in close association with normal (clinically free of disease) periodontal collagen fibrils near the epithelial attachment area of the rat molar. Specifically, the fibrils of concern were those belonging to the free gingiva, the circular and the alveolar crest principal fibre bundles. A study of this nature is important because knowledge pertaining to AMPS of non-pathological periodontium is an essential preliminary in the understanding of the significance of any change in these substances should it occur in pathological situations.

With the ruthenium red method used by Luft<sup>1</sup> and subsequently modified by Highton, Myers and Rayns,<sup>2</sup> electron dense deposits were observed which were closely associated with the gingival collagen fibrils of the rat molar periodontium. These deposits assumed three forms: fine filaments of 30 to 40 Angstrom units (A) in thickness, which appear to extend from one collagen fibril to another; dense coats surrounding individual fibrils which, when seen on cross-sectioned collagen fibrils, appear to be approximately 100 A thick; and spherical masses measuring 150 to 200 A in diameter distributed randomly along the collagen fibril length and which, when seen, appear to be in close proximity to the major periodic 640 A repeat banding. Subjecting pieces of tissues to testicular hyaluronidase and papain digestion followed by ruthenium red resulted in a decrease in the amount of the electron dense material around some of the collagen fibrils and an absence of the fine filaments and spherical masses. This decrease or absence after enzyme treatment probably indicates that these structures consist of chondroitin sulphate-protein complexes and hyaluronic acid.

1 Luft, J. H. *J Cell Biol* 23:54A, 1964.

2 Highton, T. C., Myers, D. B. and Rayns, D. G. The intercellular spaces of synovial tissue. *New Zeal Med J* 67:315, 1968.

## Jaw muscles

### The influence of the periodontium on jaw muscle activity

*B. J. Sessle, University of Toronto*

Previous studies have suggested that periodontal receptors may protect the tooth from occlusal overload by inhibiting the activity of jaw-closing muscles. It has also been postulated that by turning off jaw closure, they are involved in cyclic jaw movements and mastication. However, recent studies<sup>1</sup> have cast doubt on these roles of the periodontal receptors since the in-

hibition of the masseter produced by tooth tap was not abolished by local anaesthesia of the tooth.

The present study re-examined the possible role of the periodontium by recording the effects of tooth stimulation on masseter electromyographic activity in man and on single trigeminal motoneurons innervating jaw muscles in cats.

An electronically controlled and reproducible mechanical stimulus applied to a maxillary incisor or cuspid produced in all nine human subjects a period of inhibition in both masseters. Local anaesthetic infiltration of the stimulated tooth completely abolished this muscle inhibition. A similar mechanical stimulus applied to the teeth of cats was also found to produce neuronal inhibition in the trigeminal motor nuclear region which was abolished by local anaesthesia.

These studies provide conclusive evidence that periodontal receptors have a significant role in influencing the activity of the jaw musculature.

1 Hannam, A. G., Matthews, B. and Yemm, R. Receptors involved in the response of the masseter muscle to tooth contact in man. *Arch Oral Biol* 15:17, 1970.

## Metabolism

### Metabolism and interaction of urea and glucose in salivary sediment system

*S. D. Biswas, University of Manitoba, Winnipeg*

Like dental plaque in situ, the pH of the suspended salivary sediment system (SSS) can vary between approximately pH 4.0 – 9.5 during the catabolism of glucose and urea. To determine its effect on the formation of endogenous ammonia and base formation from urea in the presence and absence of glucose by the bacteria in salivary sediment, the pH of the sediment mixture was kept constant at several levels from 6.0 to 9.0 by adding either hydrochloric acid (HCl) or sodium hydroxide (NaOH) with a pH-stat. At regular intervals during a two-hour incubation at 37°C, gaseous ammonia was trapped in boric acid and the content of ammonia was determined by back titration with hydrochloric acid. Urea and glucose were determined colorimetrically. The acid or base added to keep the pH constant was recorded.

By increasing the pH or the concentration of glucose in the medium, less ammonia was formed endogenously. A slight increase in ammonia formation was, however, observed around pH 9.0.

When urea and glucose were added together, the base formation (as ammonia) was suppressed both with the rise of pH and increasing glucose concentration. However, in the presence of excess glucose, the formation of ammonia was not suppressed; instead base formation substantially increased.

The results support the view that pH changes with urea and glucose do not result from simple mixing of varying amounts of acid or base produced as function of their respective substrate. Rather they result from the integration and regulation of the metabolic pathways utilized by these substrates during acid-base production.



## Periodontics

### Humoral and cellular antibody response in rabbits after intragingival injections of bovine serum albumin and *Escherichia coli* endotoxin

A. T. Ball, University of Saskatchewan, Saskatoon

The humoral antibody response in rabbits to primary, secondary and multiple intragingival injections of bovine serum albumin (BSA) or somatic lipopolysaccharide endotoxin from *E. coli* has been analysed by molecular sieve chromatography, immunoelectrophoresis and passive haemagglutination. No adjuvants were used in any of the experiments. BSA induced mainly immunoglobulin G class antibodies with the exception of the early part of the primary response. A pure immunoglobulin M response was noted following a primary injection of endotoxin. Both IgM and IgG antibodies were found in the secondary response and after repeated multiple injections of endotoxin, but IgM dominated all responses to endotoxin. The results also indicate that an enhanced secondary antibody response exists following a secondary injection of endotoxin. The IgM and IgG profiles following intragingival injections of BSA or endotoxin have now been established following three different methods of administration.

Both the protein and endotoxin antigens induced local gingival changes which resembled the histopathology of human chronic gingivitis. It was possible after the preparation of monospecific antisera to rabbit IgG and IgM antibodies to characterize the immunoglobulins present within the gingival lesions and cervical lymph nodes by immunofluorescence. The gingival lesions stimulated by both BSA and endotoxin contained plasma cell associated specific immunoglobulins to the respective experimental antigens and also high levels of apparently unrelated immunoglobulins. Although the local antibody responses to both BSA and endotoxin were heterologous, the specific anti-BSA antibody was predominantly IgG and the specific anti-endotoxin antibody was predominantly IgM.

## Pharmacology

### Pharmacologic control of tooth pulp and mandibular arteriolar pressures in dogs

H. Lemay-Laliberté and Solange Simard-Savoie, Université de Montréal

This experiment was carried out in order to study the effect of drugs of known systemic action on tooth pulp and mandibular arteriolar pressures. First, a flap was prepared to expose both mental foramina in anaesthetized dogs. From the anterior foramen, a branch of the mandibular artery was cannulated and connected to a pressure transducer. In the posterior foramen, a needle was inserted for injections of the drug. The incisal one-fourth of the clinical crown of the canine was removed until a pinkish colour was seen. A round dental bur was

inserted until a trace of blood appeared at the surface; the cannula was inserted immediately and sealed and connected to a pressure transducer.

In 22 animals, the initial pulp pressure ranged from 29.5 to 68 mm Hg with a mean level of 50.64 mm Hg. The initial arterial pressure ranged from 83 to 135 mm Hg with a mean level of 106.6 mm Hg. Each animal served as its own control before and after injection.

An injection of acetylcholine (ACh) in the posterior foramen caused a marked vasodilatation and a rapid fall in both pressures. The same dose of ACh was antagonized by atropine. A dose of neostigmine prolonged the effect of ACh, producing a return to normal after 59 minutes, whereas a double dose of ACh alone displayed a 45 second duration of response.

The responses to these injections in the posterior mental foramen (to eliminate systemic effect) led us to conclude: (1) that cholinergic receptors were present in the pulp and that the nerve terminals were invaded by the nerve impulse; (2) that the transmitter could enter a synaptic space and be subjected to hydrolysis by acetylcholinesterase since neostigmine prolonged its action by a reversible anticholinesterase activity; (3) that a local response was produced by interaction between ACh and the effector cell since atropine blocked the response.

## Pulp

### The pulpal effects of 50 per cent phosphoric acid

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The purpose of this study was to examine the effects of 50 per cent phosphoric acid on the dental pulp.

Class V cavities were prepared in 100 dog teeth under water spray with a No. 35 inverted cone carbide bur rotated at high speed. After preparation, the cavities were dried with cotton pledgets and a short blast of air. Then a 50 per cent phosphoric acid solution was applied to the cavities for a 60 second period. The cavities were washed with running water, dried with cotton pledgets and subsequently sealed with zinc oxide and eugenol cement.

For control purposes, similar cavities were prepared in teeth on the contralateral side and they were filled with zinc oxide and eugenol cement without the phosphoric acid application.

After observation periods of one, two, four and six weeks the animals were sacrificed. The teeth were then cut into serial sections and stained with haematoxylin and eosin in a routine manner. The section was subjected to microscopic examination and compared with the control.

The histological sections showed that the pulpal damages were slight. There were no significant differences in the pulpal response between the 50 per cent phosphoric acid specimens and the control specimens.

The results of this experiment indicate that the application of 50 per cent phosphoric acid on cut cavity preparations did not produce observable harmful effects on the dental pulps of dog teeth.



### Systemic mercury levels in dental office personnel in Ontario: A pilot study

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*Mercury absorption by dental personnel was evaluated by analysis of hair samples from 60 dentists, 49 dental assistants and 10 laboratory workers. Ten per cent of the dentists and dental assistants had more than twice the normal level. In one subject the hair level approached limits at which poisoning symptoms have been observed. Blood analyses confirmed these elevated mercury levels but urinalyses did not correlate so well.*

*L'absorption de mercure par le personnel dentaire fut évaluée grâce à l'analyse d'échantillons de cheveux prélevés sur 60 dentistes, 49 assistantes dentaires et 10 employés de laboratoire. Dix pour cent des dentistes et des assistantes dentaires présentaient plus du double du niveau normal de mercure. Chez l'un des sujets le niveau approchait les limites auxquelles on peut observer des symptômes d'empoisonnement. Des analyses de sang confirmèrent ces niveaux très élevés de mercure, mais les analyses d'urine indiquèrent moins bien le phénomène.*

For many years the widespread use of mercury in the community has been the subject of many investigations as to its actual toxicity to individuals exposed to metallic mercury and its compounds.<sup>1</sup>

More recently public concern over environmental pollution by mercury of rivers and lake waters has reactivated investigation of mercury contamination of dental offices and the possible ill effects on dental personnel.<sup>2,3</sup> Adverse systemic effects in individuals have been recognized and reported.<sup>4,5</sup> In 1969 Cook and Yates<sup>6</sup> reported the death of a dental assistant directly attributed to mercury poisoning. In industry there have been a number of cases and at least two deaths attributed to this cause.<sup>7-9</sup>

Mercury contamination represents a serious health hazard to dental personnel but to date a sufficiently wide survey of the profession to determine a base line in assessing this risk on a quantitative and qualitative level has not been carried out. It is with this in mind that the present study was initiated among dental office personnel in Ontario.

#### Mercury absorption

Poisoning may result from direct contact with metallic mercury or its vapour, soluble inorganic or organic mercury salts. Symptoms of mercury poisoning have been well documented<sup>10</sup> and include stomatitis, gingivitis, loosening of teeth, shaking and tremors of the extremities, personality changes such as irritability or emotional disorder, increased salivation, anorexia, weight loss, indigestion and kidney malfunction. Whilst the manifestations of massive or acute mercury poisoning are soon obvious, subclinical chronic signs are very difficult to detect. Constant exposure to metallic mercury or its compounds has a cumulative toxic effect and this represents the main hazard to dental office personnel.



Since the introduction of silver amalgam as a dental restorative material in France about 1826<sup>11</sup> controversy has waxed and waned over the possible harmful systemic effect of mercury on patients and dental personnel. The objection by the dental profession in America to the use of mercury in amalgam was the direct cause of the celebrated "amalgam war" which continued for about 15 years (1835 to 1850).

Since then there have been many investigations of mercury toxicity in dentistry. A comprehensive review of the health hazard of mercury in dentistry has been published in the *Journal of the American Dental Association*.<sup>12</sup> This review summarizes our current knowledge of the subject.

In 1926 and 1928 Stock<sup>13,14</sup> suggested that mercury absorption from amalgam fillings could be a health hazard to patients; however, subsequent investigators concluded that absorption of mercury from this source is negligible and does not usually represent a significant health hazard.<sup>15-19</sup> Despite several reports of allergic reactions to mercury from dental amalgam in some patients who were previously sensitized with mercurial drugs,<sup>18,20-23</sup> this is generally regarded as a very remote possibility in the light of the number of patients treated with silver amalgam restorations. Nevertheless, it should be kept in mind.

The main hazard in dentistry is that of direct exposure of dental office personnel to free metallic mercury or its vapour. Mercury is extremely volatile at room temperature; 1 cu m of air at 20°C may contain up to 30 mg of mercury.<sup>5</sup> The American Conference of Governmental Industrial Hygienists<sup>24</sup> in 1967 set the maximum acceptable limit for mercury vapour as a threshold limit value (TLV) of 0.1 mg/cu m of air. In 1969 the same organization recommended that this TLV be halved to 0.05 mg/cu m of air.<sup>25</sup>

Mercury may be absorbed directly into the body via the respiratory and gastro-intestinal tracts or through intact skin surfaces and may be detected in the circulatory system.<sup>26</sup> The most significant danger to dental personnel is therefore directly attributable to poor mercury hygiene in the dental office. The practice of mulling amalgam in bare hands or squeeze cloths is definitely contra-indicated. The presently recommended technique is to use predispensed, screw-sealed capsules of mercury and alloy and to employ a "no-squeeze" technique in the preparation of the amalgam. The practice of having free metallic mercury in open glass containers in the office, whereby accidental spillage may occur, is to be avoided. Free metallic mercury spilled on the floor is the main cause of high mercury vapour levels in dental offices. Other factors which greatly increase the hazard of dangerously high mercury vapour concentrations are poor ventilation and elevated room temperature.

The storage and disposal of mercury and amalgam waste material is also a potential hazard. Scrap material should be stored in a plastic, screw-topped, sealed container with the waste immersed under water or a bacteriostatic solution.<sup>27</sup> Spilled mercury should be immediately cleaned up using an evacuator tip. A vacuum cleaner should not be used as this would further volatilize and disperse the mercury particles into the atmosphere. Any inaccessible spillage should be treated with powdered sulphur or activated alumina.<sup>28</sup>

Recent investigations have shown that there is danger of leakage and dispersion of mercury from cap-

sules during high-speed mechanical amalgamation.<sup>29-31</sup> A further potentially dangerous source is by particulate contamination of the atmosphere in using ultrasonic mechanical condensation of amalgam or in cutting old amalgam restorations with high-speed rotary cutting instruments.<sup>32-35</sup>

As the signs and symptoms of chronic mercury poisoning are extremely vague, it is necessary to carry out a variety of systemic tests for elevated body levels of mercury. Methods used to detect systemic mercury include analyses of hair samples, nail clippings, blood, urine and saliva.<sup>36,37</sup>

Atmospheric mercury vapour determination is carried out with mercury vapour meters and radiation monitoring films. Airborne particulate contamination can be estimated using membrane filters.<sup>38,39</sup>

Mercury levels in human tissue were determined by Howie and Smith in 1967.<sup>40</sup>

## Materials and methods

The material in this investigation consisted of biological samples from a total of 119 persons, all of whom were volunteers and were selected randomly. Initially a group of 20 dentists, part-time members of the Faculty of Dentistry, University of Toronto, was investigated. All these people as well as the remaining professional persons in the samples were principally engaged in general dental practice and routinely used dental amalgam.

The total experimental group consisted of 60 dentists, 49 dental assistants and 10 laboratory workers. Two of the laboratory workers had little or no exposure to dental amalgam, while the other eight had been concerned with the manufacture and testing of dental amalgams for periods ranging from two to 25 years. The period of service for the dentists ranged from six months to 50 years, and for the dental assistants from two months to 20 years.

The amount of mercury contained in the hair of all subjects was determined by neutron activation analysis. Each subject provided a hair sample of appropriate size utilizing hair which was cut as close to the scalp as possible. The method followed was that developed by R. E. Jervis<sup>41</sup> of the Department of Chemical Engineering, University of Toronto. The hair samples were washed with ether and dried and then sealed in polyethylene sample bags. Capsules containing the samples together with standard mercury samples were irradiated in a thermal neutron reactor, and after standing for a few weeks the <sup>203</sup>Hg gamma activity of the samples was measured and the mercury content calculated in comparison to the standard mercury samples.

After the results for the total group had been obtained, 12 individuals showing hair content greater than 15 ppm of mercury (double the expected normal) were asked to give blood and urine samples. It was requested that the latter be an early morning sample and that the 10 ml blood sample be taken on the same day. From this group ultimately 12 urine samples and nine blood samples were made available for analysis.

Mercury in blood was determined by an atomic absorption method (Environmental Health Inc, Michigan) after sample combustion to vapour.



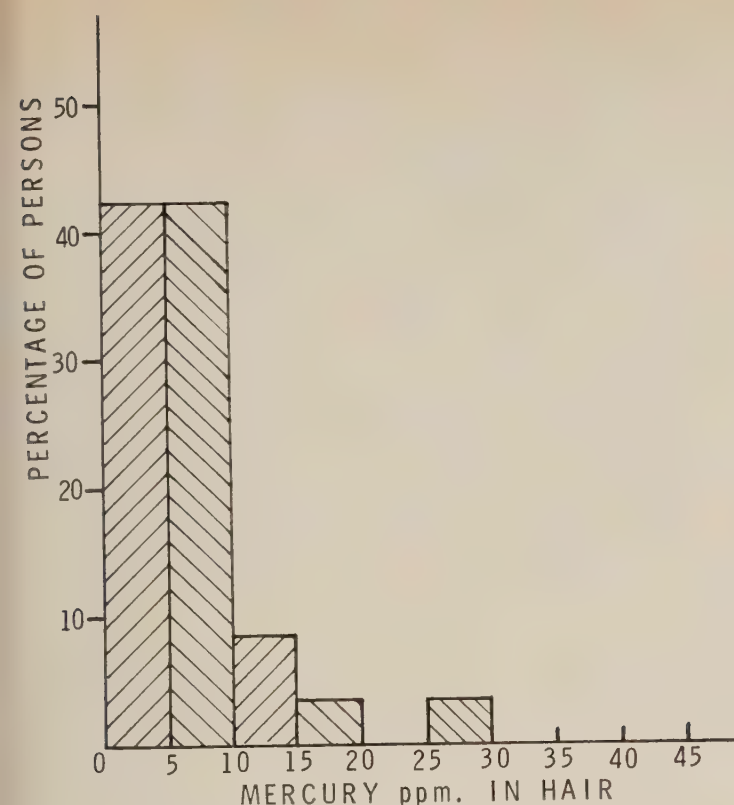


Fig 1 Distribution of mercury in hair samples from dentists.

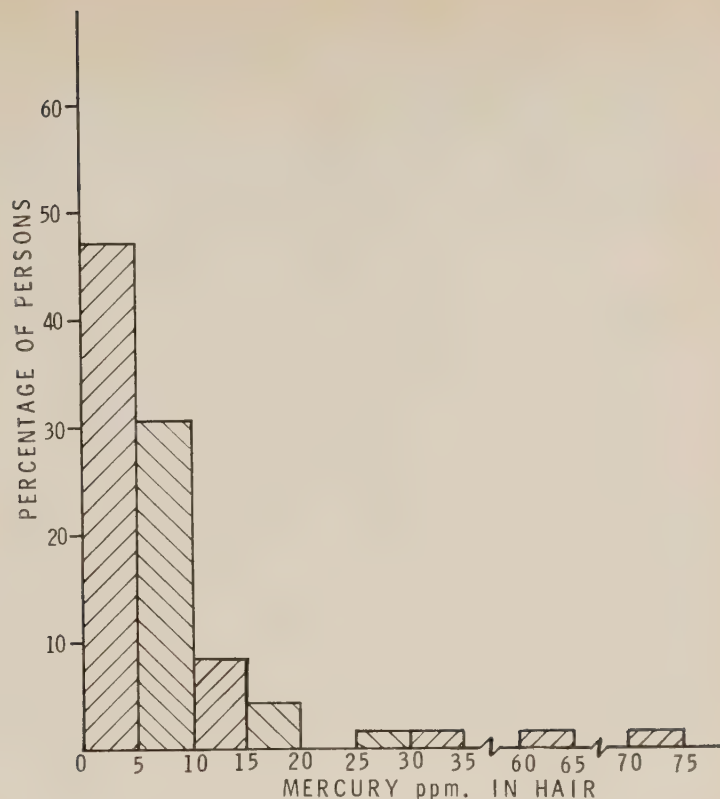


Fig 2 Distribution of mercury in hair samples from dental assistants.

In the case of the urine samples, the sample was acidified with nitric acid followed by treatment with stannous chloride and determination of the liberated mercury as vapour by an atomic absorption spectrometer (Environmental Health Laboratories, Ontario Department of Health).

## Results

The results for all the hair samples are shown in Table 1. The range was from 0.4 ppm to 72 ppm. The normal value in Ontario is taken to be approximately 7 ppm based upon work by Jervis and Perkons.<sup>41</sup> It can be seen that in the present group approximately 86 per cent have a mercury hair level of less than 10 ppm, with much lower percentages in the higher groups. Comparison of the separate data for dentists and their assistants (Fig 1,2) reveals similar small numbers in the 2-30 ppm group, but the higher mercury contents (above 30 ppm) are restricted to the dental assistants' group.

The data for the laboratory workers (Table 2) indicated normal levels in all cases except one. This group includes workers who have (No.117) and who have not (No.123,124) been engaged in testing dental amalgam for up to 20 years. The one worker with a very high mercury figure (No.120) has been involved for a number of years in the manufacture of copper amalgam.

One female dental assistant (No.98) with a mercury level of 10.7 ppm died from accidental causes during the course of this investigation.

Mercury concentration in head hair of dentists and dental assistants

Table 1

| Hg/ppm   | Dentists |       | Dental assistants |       |
|----------|----------|-------|-------------------|-------|
|          | No.      | %     | No.               | %     |
| < 4.99   | 25       | 41.7  | 23                | 46.9  |
| 5- 9.99  | 24       | 40    | 16                | 32.6  |
| 10-14.99 | 7        | 11.7  | 4                 | 8.2   |
| 15-19.99 | 2        | 3.3   | 2                 | 4.1   |
| 20-24.99 |          |       |                   |       |
| 25-29.99 | 2        | 3.3   | 1                 | 2.0   |
| 30-34.99 |          |       | 1                 | 2.0   |
| 60-64.99 |          |       | 1                 | 2.0   |
| 70-74.99 |          |       | 1                 | 2.0   |
| Total    | 60       | 100.0 | 49                | 100.0 |

Mercury concentration in head hair for laboratory workers

Table 2

| Subject No. | Hair mercury content ppm |
|-------------|--------------------------|
| 115         | 4.63                     |
| 116         | 2.0                      |
| 117         | 1.9                      |
| 118         | 1.1                      |
| 119         | 8.3                      |
| 120         | 61.5                     |
| 121         | 0.9                      |
| 122         | 1.4                      |
| 123         | 7.3                      |
| 124         | 3.9                      |



The results of the blood and urine analyses for the selected groups with high hair levels are shown in Table 3.

Information on the length of dental service was obtained from questionnaires, but did not show any direct correlation with the mercury data and is therefore omitted from this report.

## Discussion

The results of the hair analyses show that a large majority of the subjects had mercury levels within normal limits. However, as many as 10 per cent of those tested showed mercury contents approximately double or above the normal level, indicating that a significantly large group of dental personnel are exposed to mercury in some form. This may be associated with high mercury vapour concentrations in the dental office produced by mercury spillage due to careless handling during manipulation or by poorly sealed capsules used for mechanical mixing. A further contributing factor is direct absorption of mercury through the skin due to faulty handling. Of particular concern are the individuals who exhibited mercury contents above 25 ppm since this would appear to indicate a definite need for improvement and investigation of working conditions.

The higher hair values in the dental assistants group indicate an association with manipulation of dental amalgam or possibly mercurial materials. Although the means were 6.8 for dentists and 8.6 for dental assistants, three (6 per cent) of the 50 assistants had mercury levels of 25, 32 and 72 ppm respectively, whereas only one dentist out of 60 had a similar high level, which was only at 25.3 in comparison. For smaller groups of females, Nixon and Smith<sup>5</sup> obtained mean mercury contents of 8.8 ppm in the control group as opposed to a mean of 32.2 ppm in the dental assistants group. The range of results was not stated but it must be presumed that considerably higher levels than the mean were obtained. These authors further examined fingernails, toenails and axillary hair. Fingernails showed by far the highest mercury level, indicating that direct exposure to mercury and absorption through the tissues may be mainly responsible for the higher hair levels. The cause and consequences for hair levels much in excess of 30 ppm would seem to require further investigation since Nixon and Smith report a case of chronic mercury poisoning in a dentist and his assistant, when the mercury content in the head hair of the dentist was 171 ppm and 50.8 ppm in the case of the assistant, with much higher levels in the fingernails in each case.

Examination of the relationship between length of dental service and mercury level in these subjects did not show any positive relationship, although the dental assistant with a level of 72 ppm had 18 years' experience. In the case of the subject with 32 ppm, only two years of clinical experience were involved. This latter subject was tested on two occasions, three months apart, when respective levels of 38.7 and 26.1 ppm were recorded, indicating a continued exposure to mercury. Subject No.36 with 27.3 ppm mercury had been in practice for 50 years and admittedly manipulated amalgam in the palm of the hand. These results appear to confirm the findings of Nixon and Smith that

Comparative tissue levels of mercury for selected subjects

Table 3

| Subject No. | Mercury concentration |               |                    |
|-------------|-----------------------|---------------|--------------------|
|             | Hair                  | Urine<br>mg/L | Blood<br>µg/100 ml |
| 12          | 19.5                  | 0.07          | 1.5                |
| 26          | 25.3                  | 0.02          |                    |
| 27          | 72                    | <0.02         |                    |
| 29          | 14.5                  | <0.02         | 2.2                |
| 36          | 27.3                  | 0.18          | 7.8                |
| 40          | 14.3                  | 0.06          | 3.0                |
| 46          | 15.4                  | 0.03          | 5.0                |
| 50          | 18.3                  | <0.02         |                    |
| 69          | 14.6                  | <0.02         | 3.0                |
| 72          | 32.4                  | <0.02         | 5.5                |
| 83          | 16.6                  | 0.06          | 7.0                |
| 96          | 11.8                  | 0.09          | 6.5                |

the mercury levels in hair may be a result both of direct absorption and systemic absorption. This is underlined by the findings from the laboratory workers group where even individuals with 22 years' experience in the testing of dental amalgams showed very low levels of mercury absorption, whereas the one subject (No.120) with a mercury level of 61.5 ppm was involved in the manufacture and testing of copper amalgam. Stewart and Stradling<sup>39</sup> have recently confirmed that particularly high levels of mercury vapour occur when copper amalgam is prepared.

Urinalysis for the group with the high hair levels (Table 3) shows little evidence of undue exposure to mercury. The normal levels, according to Mastromatteo,<sup>42</sup> would be 0.02 to 0.08 mg/L, with values of above 0.3 mg/L for personnel exposed to mercury and above 0.6 mg/L when symptoms of poisoning could be expected. A number of other investigations of urine mercury content have been made which are in accordance with these figures. Buchwald<sup>38</sup> found values up to 0.16 mg/L for dentists and dental assistants under unfavourable office conditions.

The values in the present work are all within normal range. Although there is a slight tendency toward correlation with the hair values, this is not definite. Only in the case of subject No.36, who deliberately handles the amalgam mix, is there evidence of an elevated mercury level in both hair and urine. It is particularly interesting to note the low urine level for the subject with the highest mercury content found in this study (No.27). This suggests that the mercury in the hair is absorbed directly from mercury vapour and there is little systemic absorption.

The blood level results show a more positive correlation with the hair values. It has been stated that the normal range might extend up to 0.1 µg/100 ml and the exposed range up to 6 µg, the mercury level becoming significant in terms of toxicity above a value of 6 µg/100 ml. In the group tested only one subject is close to the normal range; all the others have values in or slightly above the exposed range. Although the correlation is not exact, the higher hair values tend to be associated with higher blood level values. These values are not as high as those found by Joselow et al<sup>36,37</sup> in their investigation of a group of workers exposed to mercury and mercury compounds. Neverthe-



less, they fall into the values found for 50 per cent of this group.

Several authors have pointed out that urinary mercury values do not correlate well with blood and saliva levels. For a number of obvious reasons the mercury urine level relates to the volume which accumulates in the bladder over a variable and indeterminate period. Although the present specimens were specified to be early morning samples, it is difficult to ensure the existence of comparable conditions in several of the subjects. Therefore, it seems likely that the urine results would indicate only situations where there was serious systemic exposure to mercury. On the other hand, in those tested in the present work, elevated mercury levels were found both in blood and in hair. These results would therefore suggest that 10 per cent of the group tested have sufficiently elevated mercury levels in the tissues to justify further medical examination as well as investigation and improvement of their working conditions. It is very unfortunate in the present instance that suitable blood samples could not be obtained from the subject with the highest mercury level encountered in the investigation nor from the dentist who employed her. It is particularly noteworthy that both of these individuals had hair levels which were at the top for their groups.

Several studies have been made recently of mercury levels in dental offices and there is ample evidence that in various countries mercury vapour levels in dental offices exceed the accepted maximum threshold limit (TLV) of 100  $\mu\text{g}/\text{cu m}$ . Gronka et al<sup>28</sup> found this to be the case for one in seven of the dental surgeries examined and it is interesting to note that this is the same order of magnitude as the percentage figure for elevated mercury levels in the present work. The American Conference of Governmental Industrial Hygienists is likely to reduce the recommended TLV to 50  $\mu\text{g}/\text{cu m}$ .

The present investigation produced at least one individual in the group selected at random who had a hair level value in excess of that reported in two cases showing definite signs of mercury poisoning. In view of this fact, further investigation into the problem of mercury absorption seems warranted. The occurrence of elevated mercury levels in as high a fraction as 10 per cent of the tested group suggests a need for routine monitoring of dental personnel. Stewart and Stradling<sup>39</sup> suggest the use of an x-ray film monitor to measure levels of exposure; but if radiation is likely to be a complicating factor, it may be more practical to provide a simple chemical kit with which to measure the general level of mercury vapour concentrations.

However, it seems desirable that a more detailed biological assay should be undertaken. Determination of mercury levels in hair by neutron activation is a useful procedure since samples are easily taken and careful application of the method may result in the determination of duration and variation of exposure by measurement along the length of the hair samples. Ultimately it may also be possible to differentiate between mercury absorbed from the air and that deposited systematically. However, the application of the neutron activation method demands the use of appropriate facilities, and some simpler method is desirable. Urinalysis is of doubtful reliability and blood sampling is unacceptable to many subjects. The demonstration by Joselow et al<sup>37</sup> of the correlation between mercury content in saliva and that in blood suggests that sali-

vary analysis would be the method of choice since the collection of saliva from the parotid gland is simple and rapid. Several sensitive chemical analytical methods are available to determine mercury content in the resultant sample. We propose to continue the present work, enlarging the study group in order to evaluate the incidence of chronic mercurialism and to determine if a routine monitoring procedure utilizing saliva-ry samples can be established.

## Summary

Although there is little hazard to patients from the use of amalgam restorations, absorption of mercury by the dentist and other dental workers is a hazard under unsuitable working conditions. Mercury absorption by dental personnel was evaluated by analysis of hair samples from 60 dentists, 49 dental assistants and 10 laboratory workers. Ten per cent of the dentists and dental assistants showed results which were more than twice normal levels, including one case where the hair level approached limits at which poisoning symptoms have been observed. Blood analyses from this select group confirmed these elevated mercury levels but urinalyses did not correlate so well. Only one laboratory worker who was engaged in the manufacture of copper amalgam showed a high mercury level. Further investigation of mercury absorption seems warranted to establish clinical guidelines and a simplified procedure for routine testing.

The authors express appreciation to Doctor G. Nikiforuk for his support of this investigation, to Doctors R. Jervis and E. Mastromatteo for advice and assistance with the analyses, and to Mr. P. K. Tjong for much of the technical work. Grant support from the Medical Research Council to Doctor D. C. Smith is also acknowledged.

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# Periodontal effects of restoring proximal tooth surfaces with amalgam: A clinical evaluation in children

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Montreal

*Class II amalgam restorations caused an immediate inflammatory response in the periodontium characterized by erythema and increased crevicular depth. Eight months later erythema persisted only on the lingual side of the experimental teeth and there was no significant difference in crevicular depth. The epithelial attachment was unaffected throughout the study.*

*A la suite de l'insertion d'obturations en amalgame de classe II, l'on a constaté une inflammation immédiate du périodonte caractérisée par l'érythème et l'accroissement de la profondeur du sillon gingivo-dentaire. Après une période de huit mois, seul l'érythème était encore manifeste au côté lingual. L'on n'a pas observé tout au long de l'expérience d'anomalie de l'attachement épithélial.*

There is ample evidence from histological data that subgingival cavity preparation causes lesions of the epithelium and subepithelial connective tissue of the free gingiva.<sup>1,2</sup> Histological studies in animals have shown that amalgam restorations in contact with crevicular epithelium of the gingiva may initiate inflammation either per se or by favouring bacterial accumulations.<sup>2,3</sup> Some clinical studies have attempted to show the same effects in humans.<sup>4,5</sup> Gingival inflammation units were scored in these studies, but the severity of the gingival erythema was not taken into account.

The present investigation was undertaken to measure the clinical effects on the periodontium of restoring proximal surfaces of teeth with amalgam. No at-

tempt was made to distinguish between the effects attributable to the amalgam itself, the rubber dam, matrix bands, or the carving of the amalgam interproximally. Criteria utilized for this evaluation were the degree of gingival erythema, crevicular depth and the level of epithelial attachment.

## Materials

Sixteen Caucasian children (eight males and eight females) between the ages of 11 and 17 took part in this study. The work was performed by third and fourth year dental students as an extracurricular summer project. For each subject, one or two posterior teeth were restored with Class II amalgam fillings. Rubber dam was used in every case. All restorations were left unpolished. Each experimental proximal surface had an adjacent tooth to which contact could be restored. Since all the restorations were judged clinically acceptable by the student and his assessor, the investigator did not evaluate their physical and functional qualities. The possibility of defects makes the restorations more representative of dentistry at large.

In contralateral quadrants, corresponding proximal surfaces without restorations and with an adjacent tooth were selected as controls. Thirty amalgam Class II restorations provided 32 experimental papillae and 44 experimental proximal surfaces from which to measure crevicular depth and to determine the location of the epithelial attachment as related to the cemento-enamel junction.

## Method

The degree of gingival erythema at the papilla was assessed using a modification of Ramfjord's gingivitis index:<sup>6</sup>

- 0 no inflammation;
- 1 mild inflammation, slight to moderate change in colour and texture at the tip of the papilla;
- 2 moderate inflammation, slight to moderate change in colour and texture of the entire papilla which may extend to the marginal gingiva; and
- 3 severe inflammation, marked redness, tendency to bleed, ulceration and laceration.

Buccal and lingual scores were given for each papilla assessed. To evaluate adequately the gingival changes, the tissues were dried with a blast of air. A mouth mirror was used to retract the cheeks or lips and to observe the lingual surfaces.

For the measurement of crevicular depths, calibrated University of Michigan No. 0 periodontal probes were used throughout the study. Two measurements — one buccal and one lingual — were recorded from each restored proximal surface. The same procedure was repeated on the control side. For each measurement, the distances from the free gingival margin to the cemento-enamel junction and to the bottom of the pocket were recorded.

The data were collected by the same investigator before cavity preparation, immediately after insertion of the amalgam restorations, and eight months later. In order to keep the number of variables to a minimum, no oral hygiene instructions were given.



Data collected from gingivitis assessments were analysed by the chi-square and McNemar tests to establish the statistical significance of any changes.<sup>7</sup> Data on the crevicular depth and the level of the epithelial attachment were analysed by the Wilcoxon matched pairs signed-ranks test.<sup>7</sup> These tests compared evaluations and measurements collected on the buccal side, on the lingual side and on the buccal and lingual sides combined.

## Results and discussion

Prior to the restorative procedures there were no statistically significant differences between the experimental and the control areas.

On completion of the restorations, gingival erythema became significantly more severe in the experimental areas. This finding was evident on buccal, lingual, and buccal and lingual sides combined.

There were no statistically significant differences in the crevicular depth of the control and experimental areas when the buccal and the lingual sides were considered individually. However, when buccal and lingual measurements were combined the crevices of the experimental areas were significantly deeper.

No significant migration of the epithelial attachment was observed on the buccal, lingual and combined buccal and lingual sides of the control and experimental areas.

The restorative procedures caused erythema of the gingival papillae and an increase in crevicular depth. However, since no disturbance of the epithelial attachment could be detected, the increase in crevicular depth could have resulted from oedema. In children, the epithelial attachment is usually located on enamel. This makes it difficult to relate with precision the bottom of the crevice to the cemento-enamel junction.

Eight months later the experimental areas showed significantly more erythema lingually than the control areas. The buccal sides alone and combined with the lingual sides of the compared areas were not significantly different. For the control areas, the data assessing the degree of erythema at the end of the study did not differ significantly from those collected immediately following the restorative procedures. This applies to the buccal side, the lingual side and both sides combined. For the experimental areas, there was a statistically significant decrease in the severity of erythema during the eight months following the restorative procedures. This change was observed on the buccal side and on the combined buccal and lingual sides. However, the lingual side showed no significant change in the degree of erythema.

This persistence of erythema on the lingual side of the experimental areas could be the result of improperly trimmed amalgam restorations acting as physical irritants or favouring the accumulation and retention of bacterial plaque. There is also a chance that the placement of rubber dam, matrix bands, or the carving of the amalgam could have caused a permanent damage in this area.

When considering crevicular depths and levels of epithelial attachment at the end of the eight month experimental period, no significant differences were detected between the control and the experimental areas for all sides studied. During this period there

were no significant changes in crevicular depths and levels of epithelial attachment in both the control and the experimental areas for all sides studied.

Given the initial increase in crevicular depth on the experimental side following restorations, and the absence of further significant changes in the control and the experimental areas, one would expect to see increased crevicular depth on the experimental side after eight months. There were no significant differences, however, between the control and experimental areas at the end of the study. This unexpected result could be due to a non-significant increase of crevicular depths in the control areas, a non-significant decrease in the experimental areas or both.

In this study all significant results were at the 5 per cent level.

## Summary

The clinical effects of amalgam restorations on the interproximal periodontal tissues of 16 Caucasian children aged 11 to 17 years were measured over a period of eight months. Used as criteria were the degree of erythema, the crevicular depth and the level of epithelial attachment as related to the cemento-enamel junction. Statistical analysis of the resultant data permitted comparisons of buccal, lingual and combined buccal and lingual sides of the control and experimental areas. The measurements were compared before, immediately after, and eight months after the insertion of amalgam restorations.

## Conclusions

Clinical procedures involved in restoring posterior teeth with Class II amalgam restorations caused an immediate gingival inflammation characterized by erythema and increased crevicular depth, but without significant migration of the epithelial attachment.

After eight months the erythema persisted only on the lingual side of the experimental teeth, and there was a significant decrease of erythema on the buccal side of the interdental papillae. There was no significant difference in crevicular depth between the control and the experimental areas.

The epithelial attachment in the experimental and control areas exhibited no statistically significant differences throughout the study.

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### Book Reviews

#### The Modern Family Guide to Dental Health

A. N. Cranin. New York, Stein & Day, 1971. 324 p. Illus. \$8.95

This 324 page book is a veritable encyclopaedia. Its ideal place would be in public libraries, secondary schools, universities and particularly in teacher training colleges. Despite excessive detail about some unusual and rare conditions, *Modern Family Guide* is very useful as a reference book.

Comparisons with Paul Revere's *Dentistry and its Victims* are unavoidable. The latter is billed as a self-defence handbook which people need to protect their teeth and their pocketbook. The intent, it seems, was more for impact than for patient education. Cranin's book, on the other hand, gives information without resorting to emotional techniques.

It does have some shortcomings, however. Some of the terms may be difficult for the layman to understand. There is inadequate exposition of the proper use of dental floss. The line drawings are not anatomically correct. It would have taken very little more effort to do them properly; patients would then be able to relate more accurately to the condition that is pictured.

The section on gerodontology is interesting and reflects renewed interest of dentists in this field.

I disagree, however, with some of the treatments recommended, particularly prophylactic odontotomy and the use of silver nitrate in developmental fissures and grooves.

I also question Cranin's claim that fillings which fall out are a very common occurrence. Many are due to improper cavity preparation and condensation but many break down because of poor oral hygiene practices on the part of the patient. I dispute his statement on thumbsucking. Cranin argues that one should not interfere with established habits before the age of six

years. He claims earlier intervention is unsuccessful and may cause psychological damage far worse than the damage caused by the mouth habit. I disagree with this view because chronological age is not synonymous with developmental age or maturity. Patients with deleterious habits can be treated at any age as long as they are aware of the problem and can be motivated to cease.

The chapter titled "How Much Should it Cost" is quite reasonable; however, an earlier chapter on orthodontic services contains a good deal more information on the cost of orthodontic treatment—information that appears very defensive.

In the chapter on "Teenage Troubles," I agree that "candy and other vending machines loaded with sweets should be removed from the school lunchrooms," but I differ with the admonition that teenagers should have bitewing x-ray examination at least two or three times a year irrespective of their previous caries experience. The claim is invalid, if the past history of the patient has been good.

Cranin states in regard to fluoridation that only one chemical—sodium fluoride—will prevent tooth decay. This, too, is incorrect.

Despite some of its rather lengthy explanations, *Modern Family Guide* is nevertheless useful for supplementing other patient education aids such as CDA pamphlets. I therefore keep three copies of the book in my office so that I can invite favourably motivated patients to read specific chapters. Later, I ask whether they have further questions about the problem under discussion. Parents are very receptive to this type of education; while waiting for their child, they get an opportunity to read pertinent chapters about his dental health. Used in this manner, *Modern Family Guide* can be a very valuable method of patient education.

Ivan Hrabowsky

#### Oral Pathology: An Introduction to General and Oral Pathology for Hygienists

D. A. Kerr and M. Ash, Jr. Ed 3. Philadelphia, Lea & Febiger, 1971. (Available in Canada from The Macmillan Company of Canada Ltd, Toronto) 310 p. Illus

The authors, both at the University of Michigan, bring a wealth of experience to the new third edition of this well-known book. They have adhered to their stated purpose, which is to present the subject of oral pathology to dental hygienists as an essential background to their dealings with patients. The book will be of equal interest to anyone in the paradental sciences.

Each chapter is prefaced by a discussion of the underlying pathological principles that are germane to the subject matter. The introduction has been greatly augmented and brought up to date in its description of the functions and ultrastructure of the cell. Chapter 4 has been expanded by a more extensive discussion of the inflammatory process. A timely addition is a section on genetic mechanisms that is in keeping with advances being made in this field.

Throughout the text there are numerous additions and rephrasings that amplify and clarify previous material. A number of the illustrations have been replaced by better examples and many new ones have been added.

The scope of the text encompasses the field of oral pathology very adequately and should provide the reader with a broad understanding of the subject. All in all, the authors have accomplished their original intent most commendably and the book is recommended by this reviewer.

H. A. Hunter

#### The Strange Story of False Teeth

John Woodforde. London, Routledge & Kegan Paul, 1968. (Available in Canada from General Publishing Co Limited, Don Mills, Ont) 137 p. Illus. \$7.50

Concisely and in an interesting manner the author traces the development of artificial teeth. In doing so he relates chronologically the stages of development to the appropriate social conditions.

The Etruscans reached a summit of progress (700 BC) in wiring single, and at times multiple, substitutes to natural teeth which was unmatched until the late 17th century. Decayed and missing teeth were no respecters of persons. It is from those occupying high posi-



tions that most of the author's information is derived. Vanity rather than a wish to chew better inspired the makers of early false teeth. Victorian ladies learned to smile with closed lips and removed artificial teeth to eat, thus developing the custom of eating privately in their bedrooms. Portraits of the nobility testify to the efforts made by artists to fill out faces by means of cotton—or other materials—placed in the mouth. The famous portrait of George Washington by Stuart (1796) is a notable example of this.

The full range of materials and methods used in the attempt to produce usable complete dentures is related. Fauchard (1728) is credited with experimenting with the use of springs to hold the lower denture down and the upper up. Gardette of Philadelphia (1800) quite by accident discovered the retention of the upper denture by atmospheric pressure. Other dentists ridiculed the idea, however, and it was many years before springs were discarded. A patient demand existed in the 1890s for springs to control the "dancing top set." The lengthy process of developing dentures was the result of many contributions and really only reached a degree of reasonable satisfaction in the present century.

The author has made a fine contribution in assembling this information and presenting it in an interestingly readable form.

D. W. Gullett

## Occlusion

S. P. Ramfjord and M. Ash. Ed 2. Toronto, W. B. Saunders Company, 1971. 427 p. Illus. \$17.00

Doctors Ramfjord and Ash state in their preface that "the subject of occlusion is one of the most controversial and challenging aspects of dentistry;" they might have added: "as well as one of the most difficult to teach and comprehend!"

Like its predecessor, this second edition covers the subject thoroughly and includes newer information on the physiology of occlusion on which all diagnosis and therapy, as presented by the authors, is based.

The format is similar to that of the first edition and is divided into three sections: (1) anatomy and physiology of the masticatory system, (2) functional disturbances, and (3) diagnosis and treatment of functional disturbances. Each section has numerous chapters and sub-headings—all presented in a manner that permits the reader to refer back and forth at will. Unlike many texts today, the reader does not get lost in lengthy details covering a myriad of details; the paragraphs are short and concise.

References from the literature are used in precise fashion. The book is printed in large bold type and the photographs and drawings, many of which are new, are very clearly presented and pertinent to the printed material.

Most readers will find the authors' approach logical and easy to follow, though some may disagree with their opinions. Inevitably, there is still much room for clarifying or proving their interpretation of the all-important aspect of physiology. Another aspect which may disturb some readers is the order of therapy given in the third section: therapy for bruxism precedes that of occlusal trauma while treatment for temporomandibular joint problems appears much later in the book.

These criticisms are relatively unimportant, however. Indeed, this second edition is a "must" for undergraduate and graduate students, general practitioners as well as specialists—or for anyone who desires to improve his knowledge of occlusion and apply this information in providing sound occlusal therapy for his patients.

A controversial subject, and one most difficult to teach: Doctors Ramfjord and Ash have reduced the controversy and have made this challenging subject much easier to learn and comprehend.

R. F. Harvey

## Current Concepts of the Histology of Oral Mucosa

*Proceedings of a symposium held at the University of Illinois College of Dentistry. Edited by C. A. Squier and Julia Meyer. Springfield, Charles C. Thomas, 1971. (Available in Canada from the McGraw-Hill Company of Canada, Scarborough, Ont) 305 p. Illus. \$22.50*

This book records a symposium held at the University of Illinois College of Dentistry in June 1970. The main purpose of this volume as stated by the editors is "to provide teachers and research workers in oral histology and the clinical fields in which it is applied with a coherent account of current knowledge of oral mucosa."

Although much information on the oral mucosa has been gathered by research workers, most of it is known only to the few whose research interests lie in this direction and very little of it is found in textbooks. This is the first effort to present the bulk of the information in a publication other than a scientific journal.

The proceedings are divided into 17 chapters written by 26 American, Canadian and European contributors. The chapters are grouped into three sections: oral epithelium, connective tissue

underlying oral epithelium and the physiological aspects of the oral mucosa.

Each chapter resembles a review article, and the topics have been selected so as to cover each section to the best advantage. One impression that I received after reading this book is that the editors have achieved their aim; in many other volumes containing the proceedings of symposia each chapter or presentation stands alone and is not integrated into the remainder of the volume. These proceedings, however, because of the authors' expertise and the editors' broad understanding of the area and diligence in editing, are presented in an integrated and coherent form. The authors are to be congratulated on two accounts: the writing is simple enough to be understood by anyone not intimately involved in relevant research areas, and the bibliography at the end of each chapter allows the reader to pursue the topic under discussion to whatever level he desires. Another advantage of the book is the thoroughness with which the author and subject indexes were prepared.

This long needed volume is indeed welcome, and I hope that it will influence the method of instruction on this subject and its treatment in future textbooks on oral histology and pathology.

C. P. Osmanski

## Full Dentures

Alan Mack. Bristol, John Wright & Sons Ltd, 1971. (Available from The Macmillan Company of Canada Ltd, Toronto) 105 p. Illus. \$5.50

The use of clear and concise language has enabled the author to condense an unusual amount of information into a small textbook. He has covered most of the current theory applied to complete dentures from the biological and technical aspects. The black and white illustrations are adequate. The beginner, the general practitioner and the specialist will appreciate his efforts.

A method for determining the form of the polished surfaces of a difficult mandibular denture is given. Sir Wilford Fish 40 odd years ago was the first anatomist and dentist to suggest the importance of these surfaces. Mandibular full dentures function much better when they are designed according to his precepts.

Some paragraphs seem very brief but this encourages the searcher to think, which is one of the objectives of an education.

In my opinion, it is a very worthwhile text.

R. E. Dagg



## A shabby deal

After months of soulsearching and countless professions of its concern for "the people," the Ontario government has decided to let dental mechanics deal directly with the public. Its decision is bound to arouse deep concern, for it runs counter to the advice of its own task force as well as that of a federal group, the Wells Committee. Both have looked into the question exhaustively.

The Ontario Council of Health's task force warned that the health risks inherent in independent practice by dental mechanics far outweigh the economic benefits arising from this form of competition. And its members didn't mince any words when they concluded: "We feel strongly that the ultimate responsibility for the oral health of the dental patient must reside solely with the dentist!" The Wells Committee was even more blunt; it roundly condemned the way in which Alberta and British Columbia authorities had licensed persons with dubious qualifications and a record of illegal practice to perform their services directly for the public.

Reminded of these facts by a probing reporter, Provincial Secretary for Social Development Robert Welch conceded that the reports had been very helpful but claimed that the government is always free to accept or reject whatever advice it wants. Given that kind of philosophy, will Queen's Park really adhere to its declared intention that mechanics already practising illegally will not become automatically licensed, and that all will have to meet yet-to-be defined standards before they are licensed?

Dentures, like any other health service, should be made available to all who need them, at the lowest possible cost, yet consistent with adequate safety. On this the two committees as well as the dental profession are unanimous. Their proposals — which call for dental technologists to work with the public under the supervision of a dentist — fulfil all three of these criteria; those of the Ontario government do not! In light of these facts, suggestions that the profession is self-seeking or unwilling to relinquish control over a section of its domain are nothing more than a deliberate smoke-screen intended to confuse a credulous public. The problem is compounded when legislators display such a cynical disregard for the safety of those they represent. Inevitably, it leaves the inescapable impression that the masters of Queen's Park place the polls ahead of principle.

## Neither rouge nor chrome

In 1970, when we last made a number of simultaneous changes in the Journal's appearance, we learned that familiarity breeds content in some of our readers. One wrote: "I dislike the new format of the Journal and I will neither send my own material nor encourage others to send you theirs." But attitudes mellow with the passage of time, as reflected by a subsequent comment from the same correspondent: "I was pleased with the attractive appearance and content of the April issue — an excellent mix of news, reader opinion and scientific information." This month we present another modernization in design. Before readers give us their reactions, brooding or otherwise, we would like to explain why we consider this latest renovation important.

Since it is the CDA's official organ, the Association, through its Board of Governors and Executive Council, sets the general policy the Journal must follow. Under this mandate the Journal is expected to be self-sustaining. To do this it must compete in the advertising race and its position in that race cannot be ignored or taken for granted.

Advertisers are attracted to publications that offer them a good opportunity to catch the reader's attention. Readers, in turn, are drawn by what interests them, and we like to think that there is at least something in every issue that will be of interest to each of the 9,000 subscribers who receive it.

Quality is another word which dentists like to use when referring to the services which they render. It is a word that is also expected to apply to the Journal. But quality alone is not necessarily interesting. If advertisers suspect that a periodical has no readers or does not have the type of reader they are interested in reaching, they will abandon it.

Advertisers are no longer content with the automatic scheduling of their advertising in a "quality" periodical. They demand good exposure for their money. They do not, of course, dictate where their advertisements shall be placed; they just put their money where they think they will receive the best value, and surely no dentist would deny them that right.

The Journal must take these facts into account if it is to remain self-sustaining. And it must do so without jeopardizing the rights of contributors and readers. That is why advertisements can no longer be rigidly confined to the front and back pages. Beginning with



this issue, they are being interspersed with "perishable" editorial text. Scientific articles, however, remain free of advertisements.

Rouge on venerable cheeks? Chrome instead of hallowed woodwork? We think not. To us, the change is functional. It keeps the looks of the Journal current with its spirit, which was never antique. Of course, we will continue to strive for excellence in the scientific material and news that we publish. For we are convinced that quality and interest are complementary attributes in the press as elsewhere, and that a lady of quality may live on any street no matter in what fashion she chooses to appear.

## Needed: A national policy for oral health

Quite aside from the fact that it contributes little to the improvement of dental health, the current hue and cry over dentures diverts our attention from the pressing need for a concerted attack on the nation's backlog of dental neglect and untreated dental needs.

We live in an era when Canadians view health care as a human right and as an essential element in the quality of life. We take pride in the fact that our technology in the health sciences is equal to the best anywhere in the world. Yet no one in Canada has ever formulated a comprehensive health policy that embraces dental health. And despite a huge and expanding commitment to health care, this nation is still without any co-ordinated system for the delivery of dental health services. All we have is a patchwork of fragmented and unrelated programs that fail to answer the conditions, needs and demands of a substantial proportion of our society. As a consequence, dissatisfaction abounds with the present dental health care

system. That dissatisfaction stems from a growing awareness that full application of available health knowledge is not being put to work and is not equally accessible to all.

These criticisms will not disappear if we simply ignore them; instead, they will mount until there are sufficient people who have the ability, leadership and political power to change the health care structure by force, if necessary. Fortunately, there is still time for the dental profession to exercise leadership in forging changes in the health care system. The profession has the reputation, stature and position to influence the formulation of national policies to improve the health of the nation.

Though there are insufficient money and resources to provide immediate total dental care for the entire population, comprehensive dental care for all is an attainable goal if future resources are adequately planned, developed and distributed. Now is the time for Canada to apply fully the dental knowledge and technology at hand through an organized national dental health policy. Included as basic elements in such a plan should be nation-wide compulsory water fluoridation, a national dental health education program, an incremental program of comprehensive dental services for children, expansion of the nation's dental educational capacity and greatly increased government funding for construction and operating assistance to dental educational institutions, accelerated development of training programs for expanded function auxiliaries and for training in the performance of expanded functions by auxiliaries already in the work force, and meaningful incentives to encourage hospitals and extended health care facilities to provide dental service as an integral part of comprehensive care.

Funding mechanisms and payment systems should also receive careful attention. Initially, at any rate, they should be sufficiently flexible to accommodate a variety of methods from which the most efficient arrangements may then be determined by experience and consumer choice.

As a profession, we cannot be satisfied with the status of dental health in Canada. Because the teeth, tongue, palate, and all surrounding tissues and organs are integral parts of the body, they are directly related to total health. Because the orofacial region is an essential part of everyone's appearance and well-being, the value of oral health should occupy a high priority on Canada's health agenda. It follows that a national program that proposes comprehensive health services must, therefore, include dental health care. The sooner this is realized and acted upon, the better.



# Le pressant besoin d'élaborer une politique nationale de santé buccale

En dépit du fait qu'il contribue très peu à l'amélioration de la santé dentaire, le tollé général provoqué par la question de la prothèse distraie notre attention du besoin urgent d'une lutte concertée pour trouver une solution à la négligence manifestée par la population canadienne en matière dentaire et son faible recours aux soins des dentistes.

Les Canadiens considèrent la protection de leur santé comme un droit humain essentiel et une caractéristique de la qualité de la vie humaine. Nous sommes fiers de proclamer que la valeur de notre technologie appliquée dans le secteur des sciences de la santé se compare aux systèmes les plus parfaits au monde. Toutefois, personne au Canada n'a encore trouvé moyen d'élaborer une politique globale de la santé incluant la santé dentaire. Nonobstant l'étendue de la mise sur pied de programmes de santé, le peuple canadien ne possède pas encore de système coordonné de distribution de services de soins dentaires. Nous n'avons en partage qu'un assemblage hétéroclite de programmes fragmentaires sans aucun lien entre eux, qui s'avèrent incapables de répondre à la situation ainsi qu'aux besoins et aux demandes d'une partie considérable de notre société. En conséquence, le système actuel des soins de santé dentaire n'engendre que de nombreux mécontentements. Cette insatisfaction résulte de la prise de conscience progressive du fait que les connaissances dont on dispose sur la santé ne sont pas appliquées à leur pleine valeur et qu'elles ne sont pas accessibles à tous.

Il ne suffit pas de fermer les yeux sur ces critiques pour les réduire à néant. Bien au contraire, elles ne feront que s'accroître au point d'atteindre suffisamment de personnes détenant la capacité, l'autorité et le pouvoir politique requis pour modifier la structure du système des soins de santé, même par la violence, s'il le faut. Fort heureusement, la profession dentaire a encore le temps de manifester l'autorité nécessaire pour provoquer des changements dans ce système. En effet, la réputation, le poids et le prestige de la profession lui permettent d'influencer l'élaboration d'une politique nationale pour améliorer la santé de la population du pays.

Bien que l'argent et les ressources disponibles ne suffisent pas à pourvoir, dans l'immédiat, toute la population d'un programme complet de soins dentaires, il est possible de combler raisonnablement les

besoins par un programme élaboré de soins dentaires, à condition de planifier, de développer et de distribuer convenablement les ressources futures. L'heure est venue au Canada d'appliquer totalement les connaissances et les ressources de la technologie dentaire dont nous disposons, par le truchement d'une politique nationale de soins dentaires bien conçue. Les éléments fondamentaux d'un tel programme devraient comporter la fluoration obligatoire de l'eau à l'échelle du pays, un programme national d'enseignement de la santé dentaire, un programme de services dentaires élaboré et progressif pour les enfants, la mise en oeuvre de tous les moyens susceptibles d'intensifier l'enseignement dentaire au pays, et l'augmentation des subventions gouvernementales appliquées à la construction et à l'organisation des institutions d'enseignement dentaire, l'accélération des programmes de formation des auxiliaires dont les fonctions seront accrues et de celles déjà en fonction qui seront appelées à jouer un rôle similaire, l'application de moyens susceptibles d'inciter les hôpitaux à dispenser des services dentaires intégrés à un plan d'ensemble.

Il faudrait aussi étudier attentivement les mécanismes destinés à créer des fonds ainsi que les systèmes de paiement. De toute façon, au point de départ, ces mécanismes devraient être assez souples pour répondre à une variété de méthodes permettant de déterminer les arrangements les plus efficaces à partir de l'expérience et de l'option des consommateurs.

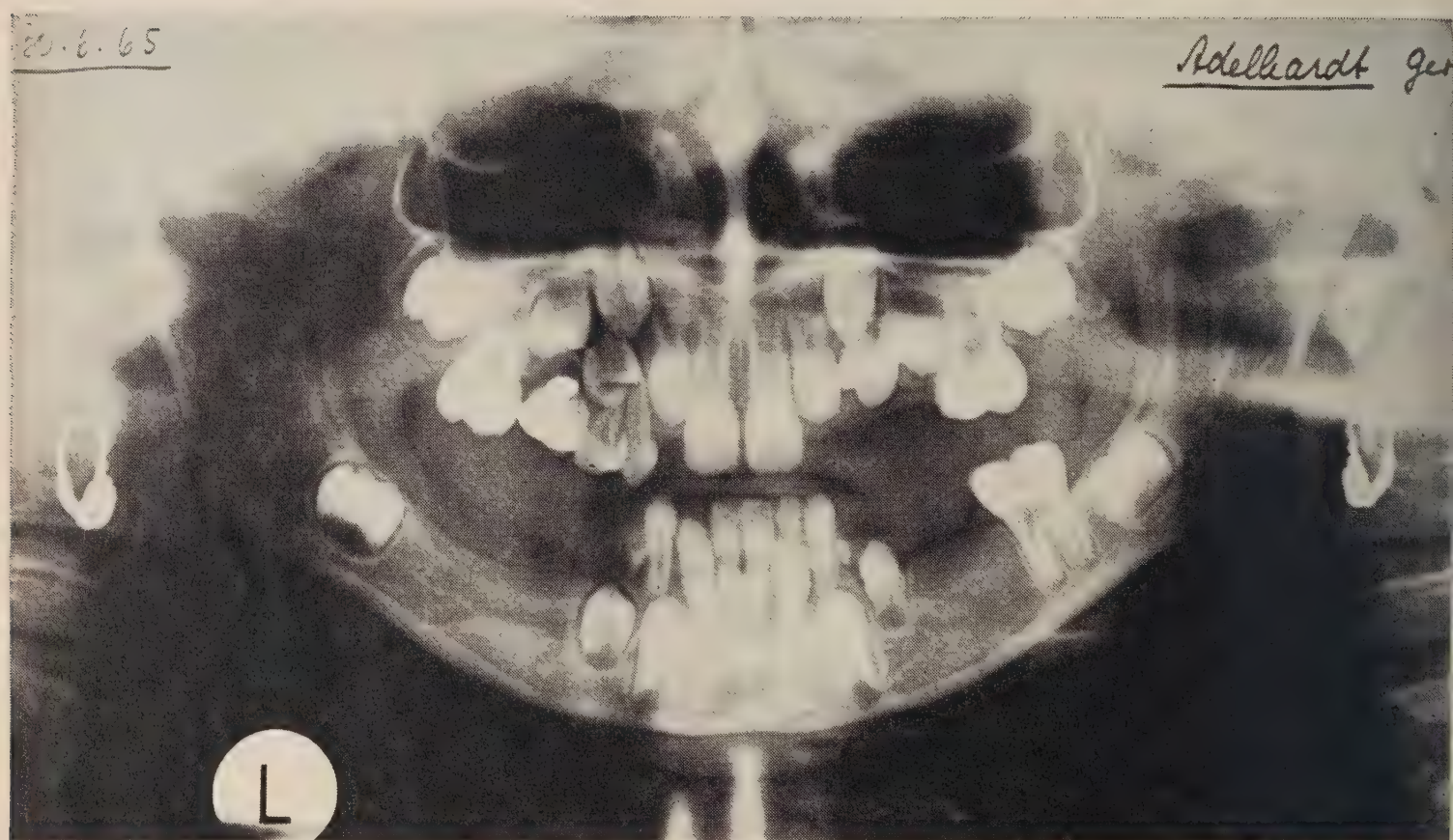
En qualité de membres d'une profession libérale, nous ne pouvons éprouver de satisfaction face à l'état de la santé dentaire au Canada. Comme les dents, la langue, le palais ainsi que tous les tissus et organes adjacents constituent des parties intégrantes de l'organisme, la santé de tous ces éléments est directement reliée à la santé générale. Considérant aussi que l'appareil bucco-dentaire tient un rôle de première importance pour le bien-être et l'apparence de chacun, la santé orale doit occuper un rang prioritaire au programme de santé canadien. En conséquence, le programme national qui propose des services généraux de santé doit comporter nécessairement les soins de la santé dentaire. Plus tôt ces vérités seront perçues, plus vite elles se concrétiseront par des faits qui assureront le mieux-être de toute la population.





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For further information, contact your local Siemens dealer or Siemens Medical Canada Ltd, Box 7300, Pointe Claire 730, Quebec.

## The Siemens Orthopantomograph



## Dental records

Section 66 of the by-laws of the College of Dental Surgeons of the Province of Quebec (1968 ed) describes acts which are derogatory to professional honour. Item 25 identifies "not having and keeping detailed records of treatment given to a patient" as one such act.

Disciplinary penalties which may be imposed by the Council on Discipline of that college are contained in Chapter 253, Section 130-131 of the Dental Act of the Province of Quebec (Revised Statutes of Quebec 1964). The penalties range from dismissal from the college to censure.

The acts of the provincial government and the by-laws of the College serve to protect both the dentist and the public. Similar acts and by-laws exist in all other provinces.

The dental record becomes an invaluable document which may protect or incriminate a dentist depending upon his course of treatment, the accuracy and the completeness of the document. Obviously, inaccurate or incomplete records handicap the dentist in cases involving lawsuits for negligence or malpractice. Proposed changes to Section 152 of the Quebec Dental Act would extend the period during which a dentist could be sued for professional negligence to 30 years. He would then have to keep his records for 30 years instead of the present two years.

A second and seldom mentioned fact about dental records is that they become an invaluable document for purposes of identification. Forensic odontology is a brand new science to the North American continent. One of its prime purposes is to identify unknown individuals. A dentist may thus be called upon to submit his records or a copy thereof to municipal, provincial or federal law enforcement agencies.

In dental school we were all instructed in the fine art of describing the restorations that we placed in patients' mouths. These verbal descriptions were then transcribed to dental charts. It has come to my attention recently that such detail is sometimes missing in the dental records of practising dentists. In fact some of these records are inaccurate, incomplete or sometimes totally absent. Needless to say, dental records should be as accurate and as complete as pos-

sible. If the initial dental examination of a new patient shows that dental restorations exist, these must be recorded regardless of whether or not they must be replaced.

Some dentists mistakenly believe that radiographs or odontograms can replace written dental records. Radiographic records are "incomplete" if the dentist postpones taking new radiographs immediately following dental treatment until the following general checkup six months to a year later. Odontograms show only the occlusal, lingual and buccal views of the dentition. Radiographs and odontograms supplement and confirm narrative descriptions as do photographs, casts, other models, and distortion-free and dehydration-free impressions. But none of these can substitute for proper dental records.

The following example illustrates the effectiveness of a written record. A deep mesio-occlusal cavity preparation and restoration in the upper right first permanent molar can be described as: 16 MO, Dycal, ZOE, Copalite, amalgam. Quickly recorded, this information is invaluable from an ethical and a legal standpoint. It identifies the tooth, the cavity design and the materials used from the pulpal floor or the axial wall to the external surface of the tooth — something that neither a radiograph nor an odontogram can disclose.

In this age of socialization, dental records will have to be accurate and complete if we are to expect prompt third party payments. This is a third reason why "good" dental records should be kept.

*R. B. J. Dorion, BSc, DDS  
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## Phosphate supplemented chewing gum

For practising dentists who are constantly being asked about the relationship between chewing gum and dental caries, the recent report on the anticariogenic effect of dicalcium phosphate supplemented chewing gum by Richardson et al,<sup>1</sup> like the earlier review by Richardson and Castaldi,<sup>2</sup> is a welcome addition to the literature. The use of chewing gum as a vehicle for caries-preventive compounds has been studied since 1945 and, though the results have been variable, it should be noted that in no published study have the gum users had demonstrably more caries than the non-users.

The question of the relationship of phosphorus to dental caries was opened in the 1930s and, after a hiatus of nearly two decades, has been intensively examined in recent years. To date, evidence that phosphate supplements, when added to the diets of rodents, reduce the incidence of dental decay

has been impressive, while the results from human clinical trials have been generally inconclusive. Currently, research is being conducted along several lines, including identification of the vehicle of choice for phosphate supplementation and for formulation of the phosphate compound to be used.

As regards a phosphate vehicle, the most successful agents so far appear to be cereals and cereal products. Five research teams have reported reduced caries incidence when phosphates were added to human diets, primarily to the cereal components, while three teams failed to find any significant caries reduction. On the other hand, the effect on caries by using chewing gum as a phosphate vehicle has been studied by only two groups, Finn and Jamison<sup>3</sup> and Richardson et al. The former group reported a 20 per cent caries reduction while the latter demonstrated a reduction of marginal statistical significance.

The type of phosphate compound has been shown to have a bearing on the degree of caries reduction in rodents. It appears that the anticaries activities of different types of sodium phosphates decrease in following order: trimeta-, tripoly-, hexameta-, ortho- and pyrophosphate. The salts of the same anion (e.g. orthophosphate) decrease in anticaries activity as follows:  $H > Na > K > Ca > Mg$ . Therefore, while both clinical trials with chewing gum have used dicalcium phosphate, it remains that sodium trimetaphosphate has been shown to be the most effective of all phosphates yet tested on rodents and appears to be the logical compound for future clinical trials.

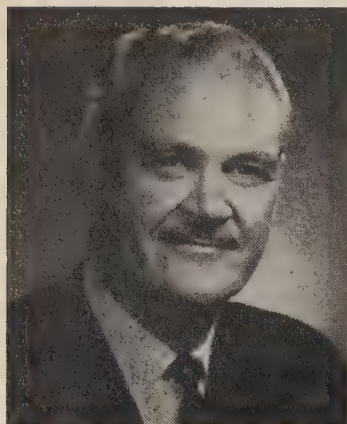
In conclusion, dicalcium phosphate supplemented chewing gums can do no harm and may even be of benefit to the teeth, especially if used during the mixed dentition stage. Research on the anticaries action of phosphates is encouraging and further investigation is needed to establish the mechanism by which phosphates reduce decay, the phosphate formulation which is most effective in caries reduction and, finally, the vehicle by which phosphates may be best administered to humans.

*J. W. Stamm, DDS  
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Montreal, Que*

- 1 Richardson, A. S., Hole, L. W., McCombie, F. et al. Anticariogenic effect of dicalcium phosphate dihydrate chewing gum: results after two years. *J Canad Dent Ass* 38:213, 1972.
- 2 Richardson, A. S. and Castaldi, C. R. Current status of chewing gum in preventive dentistry. *J Canad Dent Ass* 31:713, 1965.
- 3 Finn, S. B. and Jamison, H. C. The effect of a dicalcium phosphate chewing gum on caries incidence in children: 30-month results. *J Amer Dent Ass* 74:987, 1967.



## EXECUTIVE DIRECTOR'S PAGE



W. G. McIntosh, DDS

### Training program for graduates of foreign dental schools

Under new regulations put into effect by the National Dental Examining Board of Canada in 1971, graduates of foreign dental schools listed in the World Health Organization's *World Directory of Dental Schools* may be accepted for the National Board examinations. Successful completion of these examinations entitles the candidate to an NDEB certificate which fulfils the requirements of licensure to practise dentistry in all 10 provinces, providing all other qualifications imposed by the provincial licensing boards are met.

Two sets of these National Board examinations have now been held. Of the 86 candidates who tried the examinations only 13 (about 15 per cent) were successful in meeting Canadian standards. Those who were unsuccessful, along with many times this number who did not try the examinations knowing their educational and practice experience did not match Canadian requirements, have no place to turn to upgrade their knowledge and skills.

Realizing the seriousness of this problem, the Association of Canadian Faculties of Dentistry suggested in 1971 that "appropriate steps be taken to establish a training centre or centres for graduates of foreign dental schools who do not meet the minimal requirements for licensure in Canada."

The suggestion was referred to the Association's Council on Education. In considering the matter, the Council contemplated the possibility of establishing a "Canadian National College of Dentistry" (April CDA Journal, p 127) which might provide facilities for retraining immigrant dentists and which, at the same time, might also provide facilities for upgrading the knowledge and skills of Canadian dentists who either need or want such instruction. As a first step, the Council appointed a small task force to initiate a study

to determine the magnitude of the immigrant dentist problem.

The CDA Bureau of Dental Statistics was asked to gather information from Canadian dental schools, the National Dental Examining Board and the various licensing boards regarding the number of immigrant dentists who had inquired about registration and retraining during the last five years. All of these agencies were contacted and most cooperated by listing the names of the applicants and the dates of their applications. A few were either unable or unwilling to do more than estimate the number of inquiries they had received.

Analysis of the data has provided a measure of the magnitude of this problem. During the five year period spanning 1967 to 1971, Canadian dental schools and provincial licensing authorities received 1,295 inquiries from individual immigrant dentists concerning retraining and registration in Canada. Conservative estimates from those agencies not providing precise data add at least another 1,500, although it is not possible to determine the number of duplicate inquiries included in this estimate. The number of inquiries has increased slightly in each succeeding year, with the majority coming from emigrants of Great Britain, Europe, India and the Philippines.

Regardless of the absolute accuracy of the number, there is little doubt that the problem is serious and of major proportion. In addition to the mounting pressure from within the profession itself for facilities to retrain immigrant dentists, politicians and the public are taking advantage of every opportunity to call for action on this matter.

The ACFD and the CDA Council on Education are to be commended for focusing attention on the problem and for initiating investigations that will hopefully bring about a solution: one that is beneficial not only to our confrères from abroad but also to the Canadian public.



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# CDA Board approves Ottawa headquarters building plans

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## Montreal draws record attendance

Attendance at the national convention in Montreal reached 2,772. Of those who attended, 1,480 were CDA members, 12 dentists were from abroad, 30 were dental hygienists, 30 were dental technicians, 95 were dental assistants and 325 were exhibitors. There were also 800 wives registered.

In an historic decision, the CDA has approved architectural and financing proposals for the erection of a new association headquarters building in the nation's capital. The action, taken at the Montreal national convention, climaxed many months of intensive planning and negotiation and the acquisition of a site on Alta Vista Drive in east central Ottawa. Purchase of the property, which is adjacent to the headquarters of the Canadian Medical Association, was authorized by the Board in 1971. A decision to begin actual construction now hinges on the completion of satisfactory financing arrangements, including an appeal for building fund donations which is now being organized.

In a companion resolution, the Board voted unanimously to amend the constitution and by-laws to bring the Association under the provisions of the Canada Corporations Act and eliminate

the \$500,000 limit on real estate stipulated in the previous constitution.

The Association also launched important new initiatives affecting insurance programs, utilization of dental auxiliaries and dental care for patients in extended care centres.

## Specialty grouping proposal shelved

The grouping of specialties, a controversial subject for many years, was finally laid to rest when the Board of Governors agreed with a Council on Education recommendation that the proposal be closed.

Recognized as a new specialty, the seventh, was oral pathology. But the Board rejected two other proposals for the recognition of specialties in the fields of oral radiology and restorative



dentistry. A similar request affecting dental public health was deferred. The Executive Council was also asked to redefine the fields of prosthodontics and restorative dentistry in order to resolve problems arising from overlapping areas of interest.

The Board also learned that student membership now stands at an all time high. A report from the Council on Education's Student Membership Committee showed that 40 per cent of all students in Canada's dental schools now voluntarily belong to the national association.

In a related action, the Board approved a recommendation to transfer the trust funds in the CDA War Memorial Fund to the Canadian Fund for Dental Education. The proceeds were formerly used to fund the War Memorial student essay competition prizes; in future they will be used for the benefit of CDA student member activities.

### Board adopts new insurance proposals

The Board was informed that participation in the Association's insurance and retirement savings programs had reached an all time high. Participants in the income protection and office overhead plans number 7,904. There are 4,711 members covered by malpractice liability, 2,404 with group life insurance, 1,801 with Blue Cross extended health care coverage, 1,324 with medical and hospital insurance, 1,300 with adjustment income dollar coverage (AID), and 1,113 who participate in the CDA Retirement Savings Plan.

Noting that the Royal College of Dental Surgeons of Ontario will initiate compulsory malpractice liability insurance in 1973, the Board authorized the Council on Insurance and Investment to develop and implement a companion all risks and perils insurance plan, including business premises liability, voluntary malpractice liability (for other provinces that wish to retain this coverage on a voluntary basis), and home owners' and automobile coverage.

### Internships, residencies defined

Important new definitions relating to dental internships and residencies were approved. That on internship defines it as "... a form of hospital or clinic-oriented experience of approximately one year's duration fundamentally designed to offer the dental graduate special opportunity for advanced clinical experience and education beyond the undergraduate level."

The other definition states that "a residency program is a progressive and graduated educational experience under hospital and/or university auspices, de-



Reference committees spent busy sessions Thursday and Friday during the Board of Governors meeting. Reference committee 1, above, considered reports and recommendations on dental education, hospital services and research.

signed for the dental graduate, which should give opportunity for proficiency in a specialized field of practice or research. . . ."

The Council on Hospital Services was asked to reassess the question of representation on the Canadian Council on Hospital Accreditation if a CCHA seat is not offered to the CDA in 1972.

In response to a communication from the CCHA, the Board directed that the Council on Hospital Services give attention to the provision of dental care to patients in extended care centres such as chronic and convalescent hospitals and nursing homes and seek federal government financial support for this purpose.

Also approved was a new document titled "A Guide to Equipping a Hospital Dental Department." This will be incorporated into the CDA's "Guidelines for Dental Services in Hospitals."

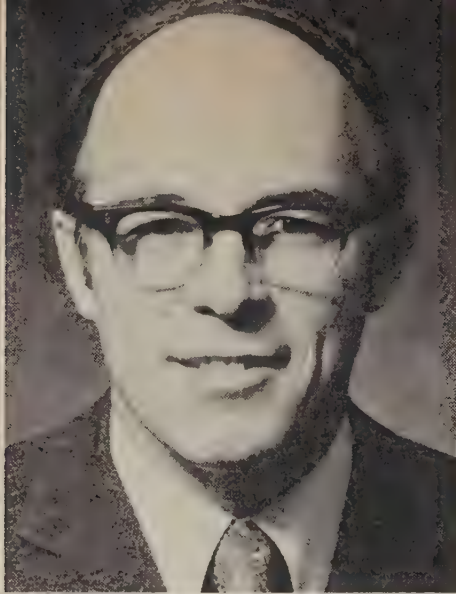
### Master plan for auxiliaries

The Board asked the Council on Auxiliary Services to organize a workshop conference as a preliminary step in developing a master plan for dental auxiliaries, embracing training, portability of qualifications, and a projection of future requirements for such personnel.

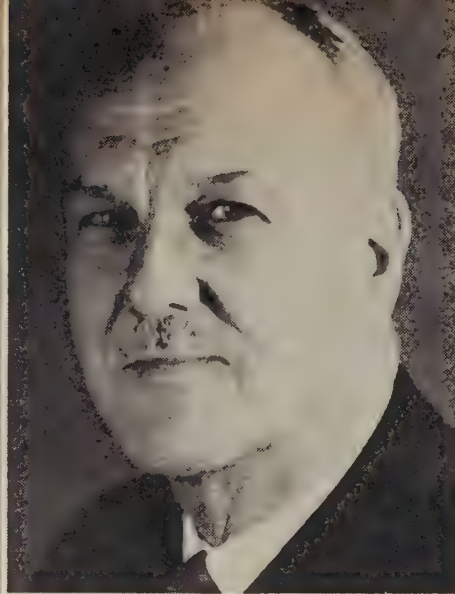


Greeting their guests at a reception for the Board of Governors are CDA President and Madame Louis Bernier, centre, and Executive Director and Mrs. W. G. McIntosh.





David K. Peters



J. E. Abra

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## DOCTOR PETERS INSTALLED AS PRESIDENT DOCTOR ABRA CHOSEN PRESIDENT-ELECT

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David K. Peters of St. John's, Newfoundland, was installed as 53rd president of the CDA. He succeeds Louis Bernier of Quebec City.

The new president was educated at Prince of Wales College and Memorial College, St. John's. After graduating in dentistry from Dalhousie University in 1950, he returned to his native city where he has practised ever since.

Doctor Peters has served organized dentistry in various capacities — as president of the Newfoundland Dental Society 1956-57, as a correspondent of the *Journal of the Canadian Dental Association* 1958-62 and as a member of the CDA Board of Governors since 1966. He was elected to the CDA Executive Council in 1970.

A talented musician, Doctor Peters has been a church organist for some 28 years and has achieved local and national recognition as a choral conductor.

He and his charming wife, Dorothy Jane, are the parents of two daughters — Ruth 16 and Jane 13 — and a son David 7. A brother, J. H. Peters, practises in Goderich, Ont.

### President-elect

A Manitoba orthodontist, J. E. Abra of Winnipeg, was chosen president-elect, defeating Ivan Hrabowsky of St. Catharines, Ont. Doctor Abra is a past president of the Manitoba Dental Association, the midwestern section of the American Association of Orthodontists and the Canadian Society of Orthodontists. Named to the CDA Board of Gov-

ernors in 1965, he joined the Executive Council in 1969.

### Executive Council

Newly elected as members of the Executive Council were H. L. Mussells, Montreal; J. F. Reid, Vancouver; and F. T. Wihak, Regina.

Continuing as council members are President David K. Peters, President-elect J. E. Abra, Past President Louis Bernier and Ivan Hrabowsky.

### Other council chairmen

Elected as chairmen of other councils were:

- E. F. Allison, Calgary, Auxiliary Services;
- W. J. Spence, Toronto, Communications;
- H. R. MacLean, Edmonton, Constitution and By-laws;
- R. G. Dickson, Drumheller, Alta, Dental Services;
- K. J. Paynter, Saskatoon, Education;
- R. M. Le Blanc, Montreal, Ethics;
- K. C. Bentley, Montreal, Hospital Services;
- D. C. Way, London, Ont, Insurance and Investment;
- H. C. Bugden, Ottawa, Legislation;
- J. E. Abra, Winnipeg, Nominations;
- C. H. McCormick, Winnipeg, Public Health and Preventive Dentistry;
- N. R. Thomas, Edmonton, Research;
- W. P. Munsie, Vancouver, was elected chairman of the Board of Governors. J. B. Taylor, London, Ont, was re-appointed treasurer for a second three year term.

In a related move designed to spur greater use of auxiliaries, the Board authorized the acquisition or development of films to familiarize the profession with the most effective methods of utilizing the services of dental hygienists with traditional qualifications and training in expanded functions.

### Board acts on submitted resolutions

Postponed indefinitely by the Board of Governors was a resolution emanating from the College of Dental Surgeons of the Province of Quebec. Its purpose was to amend the by-law provisions governing "individual membership."

The resolution would have amended Section 2 of Article II of the by-laws to read: "Individual members shall consist of those licensed dentists who are registered as members of corporate members and who have been admitted to membership in the Association upon the recommendation of the governing bodies of the corporate members *or who have been admitted to individual membership in the Association by the Executive Council.*"

A resolution submitted by the Manitoba Dental Association received Board approval. It directed "that the Canadian Dental Association do comparative studies, province by province, of dental services rendered by the profession and fees established in the areas of welfare dentistry, the Department of National Health and Welfare (for both Indian Affairs and medicare) and the Department of Veterans Affairs, and that this information be collected, kept current, and made available to the corporate members of the CDA."

Action on another resolution, also from the Manitoba Association, was indefinitely postponed. It would have directed "that the Canadian Dental Association collect information from insurance firms that are underwriting prepaid dental insurance plans about the type of plans they are providing and the groups that have purchased plans, and that this information be kept current and made available to the corporate members of the CDA."

The Board noted that there is considerable difficulty in operating such a registry and was informed of joint efforts now being made by the Canadian Association of Accident and Sickness Insurers and the CDA Council on Dental Services to develop an identification card which will show the dental benefits to which an insured person is eligible.

In other actions, the Board:

- Approved a 1973 budget showing income of \$557,200 over expense of \$541,200, for a surplus of \$16,000;

- Approved recommendations authorizing the Executive Council to elect honorary members and converting the





J. W. Stamm, (left), of McGill University, Montreal, was this year's recipient of the Canadian Dental Research Foundation Award. He is congratulated by President Louis Bernier and Arto Demirjian, chairman of the CDRF Award Committee.

Council on Headquarters Property to a committee of the Executive Council;

- Concurred with a recommendation that the CDA seek representation on all national bodies where representation would be of benefit to the dental health of the Canadian public;

- Adopted new guidelines governing the Association's involvement in national health programs;

- Concurred with a proposal to amalgamate the Councils on Dental Services, Auxiliary Services and Public Health and Preventive Dentistry into a single new Council on Health Care;



- Adopted the design for a Seal of Recognition to serve as visual counterpart for the Statement of Usefulness which defines the area of usefulness of a therapeutic dentifrice;

- Directed that future CDA presidents and their wives be invited to represent

the Association officially and at CDA expense at future FDI meetings;

- Approved the principle of listing and coding dental services; and

- Approved changes in the 1973 and 1976 national convention dates. The new dates are October 11-17, 1973 (Vancouver) and September 12-18, 1976 (Edmonton).

### Doctor Le Blanc awarded honorary membership

Robert Le Blanc, Montreal, was elected to honorary membership in the Canadian Dental Association.

Born in Colombes, France, of Canadian parentage, Doctor Le Blanc completed his dental training at the Faculty of Medicine, University of Bordeaux, in 1927. He practised in Perpignan, France, until 1940 when he returned to Canada. Subsequently, he established a practice in Sherbrooke, Que, where he practised until 1960.

Doctor Le Blanc has served organized dentistry in many capacities. He was elected a governor of the College of Dental Surgeons of the Province of Quebec in 1952. Five years later he became a co-founder of the Dental Association of the Province of Quebec.

A CDA governor from 1958-1960, he was named CDSPQ registrar in 1960, retiring from this position last June.

Doctor Le Blanc is also chairman of the CDA Council on Ethics.



Artists capture delegates' likeness during the Sunday night opening ceremony. For this event the Hotel Bonaventure's Ballroom was transformed into a replica of Montreal's famed Dominion Square, complete with sidewalk cafés, bistros and artisans' boutiques.





-Doctor and Mrs. Harold Hillenbrand, Chicago, representing the Fédération Dentaire Internationale;

-Doctor and Mrs. L. J. Baume, Geneva, Switzerland;

-Mrs. Linda Zambolin, Dartmouth, NS, representing the Canadian Dental Hygienists Association;

-Miss Elaine Wesley, Lethbridge, Alta, and Mrs. Margaret Byers, Vancouver, representing the Canadian Dental Nurses and Assistants Association;

-Mr. and Mrs. M. E. Bower, Toronto, representing the Canadian Fund for Dental Education; and

-Senator and Mrs. O. H. Phillips, Ottawa.

An attentive group clusters around Montreal's renowned Hans Selye who delivered the Grieve Memorial Lecture. Doctor Selye is director of the Institute of Experimental Medicine and Surgery at the University of Montreal.

### Doctor Stamm receives research award

J. W. Stamm, Montreal, was the recipient of the 1972 Canadian Dental Research Foundation Award. The prize, offered this year for the second time, was presented during the opening ceremony of the national convention on Sunday, June 4.

Doctor Stamm, whose graduate work was carried out at the University of Toronto, is now on staff at McGill University's Faculty of Dentistry where he is developing a course in community dentistry. He is also associated with the Department of Epidemiology of the university's Faculty of Medicine.

A table clinic draws undivided attention from convention delegates.



### Distinguished visitors

Guests and dignitaries from several national and international organizations graced the national convention by their presence. Distinguished visitors included:

-Doctor Jean Jardiné, Strasbourg, France, representing l'Association Dentaire Française;

-Doctor and Mrs. Gwynne Lloyd, London, England, representing the British Dental Association;

-Doctor and Mrs. H. D. Roberts, St. John's, Nfld, representing the Canadian Medical Association;



Jean Jardiné of Strasbourg, France, president of the Confédération Nationale des Syndicats Dentaires, addressed a Fédération Dentaire Internationale breakfast meeting on Tuesday June 6.



## FIFTY ESSAYS, LECTURES AT NATIONAL CONVENTION

Close to 50 essays, lectures and demonstrations were presented at the scientific program during the CDA national convention in Montreal. Excerpts from some of the papers follow:

### *Periodontal disease control*

A periodontist with the Canadian Forces Dental Services says that inflammatory periodontal disease affects close

to 100 per cent of the population. The disease attacks the gingiva during early adult life. Lack of oral hygiene and plaque control permits inflammation to extend below the cemento-enamel junction, with gradual destruction of the attachment apparatus culminating in the loss of dental function in middle and later life.

According to Maj. L. A. Reynolds, CFB Borden, Ont, no plaque control succeeds without the cooperation of the patient. Effective dispersion of bacterial colonies in the cervico-radicular area depends on how well he learns to use disclosing tablets, unwaxed dental floss and a toothbrush.

Maj. Reynolds pointed out that patient motivation and plaque control are also essential for successful periodontal surgery, including the reduction of pockets so that the patient can control bacterial plaque in the area of the epithelial attachment.

### *Partial denture design*

Designing removable partial dentures is the most neglected and abused phase of dental practice.



The Executive Council met May 29-31 and June 6. Picture shows President-elect J. E. Abra, L. E. English, J. F. Reid, F. T. Wihak, W. J. Spence, Treasurer J. B. Taylor, Comptroller D. M. McDonald, Ivan Hrabowsky and H. L. Mussells.



CDA past presidents held their annual breakfast meeting Monday June 5. Pictured from left, clockwise, are: A. G. Racey, Henri Brouillet, Gustave Ratté, G. M. Dewis, P. S. Christie, W. J. Spence, W. G. McIntosh, H. W. Reid, John Clay, Louis Bernier, J. P. Coupland and Rémy Langlois.



Montreal Symphony Orchestra concert master Calvin Sieb spoke to the ladies attending the convention.



This assertion was made by Lt.-Col. P. S. Sills, CFB Borden, Ont, who said that "many dentists are under the false impression that designing principles are technical in nature and can be delegated to auxiliary personnel."

He urged dentists to:

-Supply the dental laboratory with surveyed, diagnostic casts and detailed, accurate instruction for the design of dentures, and

-Correlate the basic principles of surveying, component function, control of masticatory stresses and leverages, mouth preparation and occlusal requirements to biomechanical function.

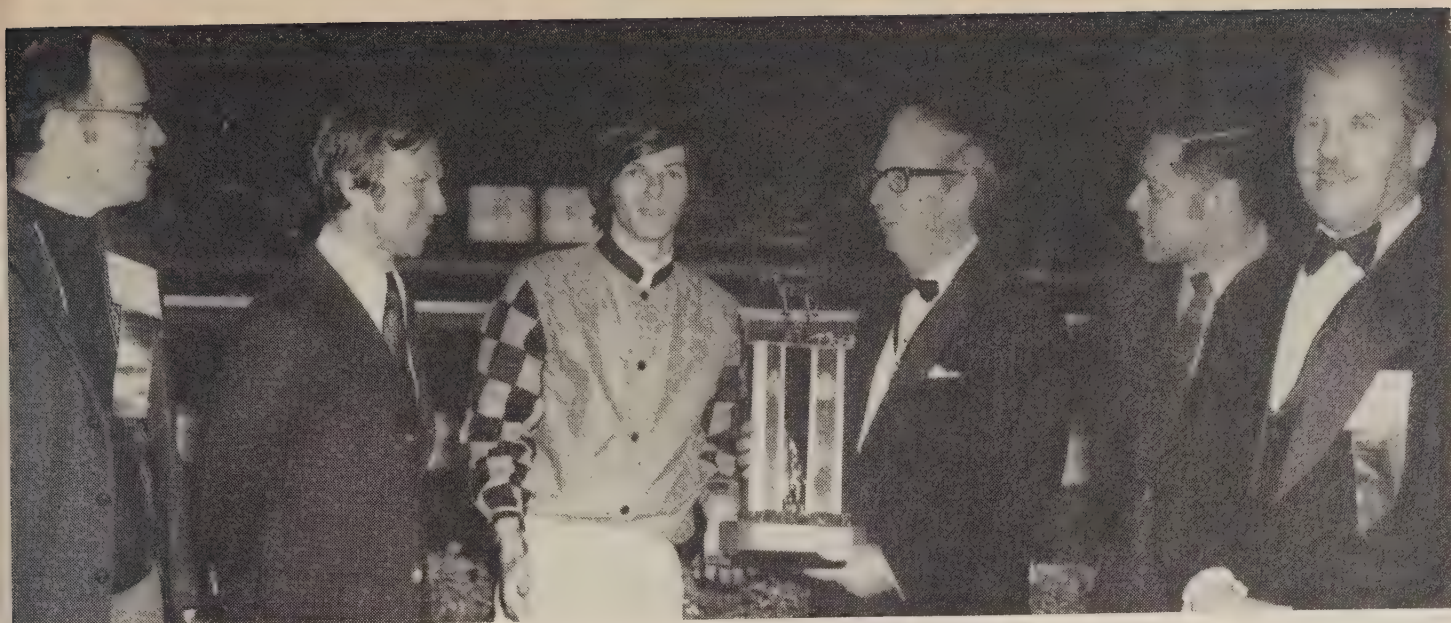
#### *Easter Island expedition*

Large numbers of decayed and missing teeth and few restorations characterize the dental health of residents of

J. W. S. McMullen, Fredericton, who won a free trip via CP Air to the 1973 FDI meeting in Australia, is congratulated by President Louis Bernier.







President Louis Bernier presents a special CDA-Quebec Dental Surgeons Association Trophy to jockey Robert Pion who won the CDA Handicap at Montreal's Blue Bonnets Raceway on Monday June 5. Looking on are CDA President-elect David K. Peters, QDSA President Hubert LaBelle, Claude Chicoine, and General Convention Chairman Murray Cornish.

Easter Island, according to Maj. A. G. Taylor, CFB Chilliwack, BC. The Canadian dentist blamed poor oral hygiene, a decreased salivary flow and lack of dental care for the islanders' poor dental health.

Maj. Taylor was the dental representative with a recent Canadian research expedition to this isolated Pacific island, 2,500 miles west of South America.

Discovered by a Dutchman, Jacob Roggeveen, on Easter Sunday 1722, the subtropical volcanic island of 55 square miles has a population of 1,000 natives and belongs to Chile. It is noted for its gigantic stone statues, varying between 15 and 60 feet in size and weighing five to 30 tons. According to Thor Heyerdahl, they were quarried from the island's Rano Raraku Volcano.

enamel cracks, denatured dentine or chronic inflammatory conditions, could produce a delayed reaction from the pulp, he noted.

Maj. Bourget said that premature ageing of the pulp should be avoided because its capacity for repair diminishes irrevocably with each inflammatory episode. Tertiary dentine formation is slow to start and unreliable for therapeutic measures.

"The human tooth is a highly resistant organ but this is not an excuse for abuse," he said.

### Students win table clinic awards

Six dental students won prizes in the CDA Student Table Clinic Competition at the Montreal national convention. The contest was again sponsored by the CDA Council on Education and founded by the Canadian Fund for Dental Education through a special grant from the L. D. Caulk Co of Canada Ltd and Dentsply Canada Ltd.

Winners in the classification "clinical application and technique" were: Renaud Turcotte, Disraeli, Que, first prize \$150; John St. Germain, Vancouver, second prize \$100; and Gary Accursi, Port Credit, Ont, third prize \$50.

Winners in the basic science and research classification were: Donald Russell, London, Ont, first prize \$150; R. A. Wiggins, Montreal, second prize \$100; and Richard Grenkow, Winnipeg, third prize \$50.

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## DOCTOR BERNIER CITES MAJOR HEALTH ISSUES

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### *Pulp protection*

Heat generated during cavity preparation is potentially the most dangerous irritant to the dental pulp, according to another Canadian Forces dentist.

Maj. J. O. Bourget, CFB Borden, Ont, warned his listeners to consider the size, shape and rotation of cutting and grinding instruments and the cooling mechanism they use.

Dentinal tubules and the margins of restorations should be carefully sealed in order to diminish any potential irritation from saliva, drugs or restorative materials. Invisible damage, such as

During a press conference at the CDA national convention, CDA President Louis Bernier discussed some of the major dental health issues facing Canadians today.

Describing the statistics on oral health in Canada as "grim," Doctor Bernier told reporters that it is a paradox that we are a nation of dental cripples at a time when we have both the knowledge and means to prevent and control most dental diseases.

### *Fluoridation*

Fluoridation heads the list of major issues in the field of dental health care, according to Doctor Bernier. He stated that acceptance of fluoridation in this country is not progressing fast enough.

"Fluorides have long been recognized by all national and international health care organizations as capable of "hardening" and imparting a lasting quality to the teeth, thus rendering them



more resistant to decay. I therefore want to state categorically that this nation will be burdened with unnecessarily inflated dental care needs until all public water systems are fluoridated."

Pointing out several of the problem areas which stand in the way of nation-wide acceptance, Doctor Bernier explained that many communities have rejected the measure because of incorrect information disseminated by people who distort the facts. Montreal is an example of this situation, he said. Residents in this city are being denied the benefits of fluoridation because Mayor Jean Drapeau believes that such water treatment amounts to a violation of a person's civil rights.

"The mayor's stance is untenable when the average youngster in Montreal needs six fillings and two extractions, when a third of the city's girls and a quarter of its boys under 15 have crooked teeth and face potential facial disfigurement.

"His opposition has contributed significantly to treatment needs more than double those of a comparable US population."

#### *Denture services*

Another major issue discussed during the press conference was denture service. Noting that Nova Scotia and Ontario residents are being subjected to a barrage of publicity over the illegal dental mechanics issue, Doctor Bernier charged that all too often the complete facts were withheld or distorted, leaving the public confused.

He detailed the difference in educational background, professional knowl-

edge and skills of both the dentist and the dental mechanic and warned of the danger in bypassing the dentist and relying solely on the limited skills of a technician.

Doctor Bernier also discussed certain changes proposed in Ontario and Quebec. "Ontario dentists have urged their provincial government to set up a one year course for registered dental technicians. This course would qualify them as dental prosthetic therapists who could take impressions and bite registrations and make complete dentures — under a dentist's supervision. The aim is to extend dental service through persons that are adequately though less highly trained than the dentist, and to bring down the costs of service while assuring full professional protection to the patient."

Commenting on Quebec's proposed Denturologists Act, Doctor Bernier criticized a provision which would permit independent denturologists to sell, supply, fit or replace dentures of all kinds. "This authorization is dangerous because it includes partial dentures, where the complexities, the variables and the need for further understanding of the biological sciences increase a hundredfold. The ability of the remaining natural teeth to support the extra stress of clasps, the shape and sizes of their roots (determined by radiographs), the health of the gums and bone — these are some of the factors to be assessed in deciding which teeth should be retained and in determining the purpose and design of the partial denture which is to replace missing teeth. Irreparable harm can be caused by a partial denture of the wrong design or one that is built on unsound teeth.

"Should this bill in its present form become law, a so-called independent

denturologist would be required to assume responsibility that no one other than a qualified dentist has been taught to assume. Not only is this detrimental to the public interest, but it poses a serious health hazard for the people of Quebec.

"We believe that registered dental technicians aspiring to serve the public should be given additional training to work in the mouth. After successful completion of this training, they should be licensed to work directly for the public under the supervision of a dentist," he said.

#### *Comprehensive plan needed*

Summing up his discussion of denture services, Doctor Bernier expressed concern that the current furor surrounding this issue would divert public attention from the pressing need for a concerted attack on Canada's backlog of dental neglect and unmet needs.

He called for the development of a national dental health policy including:

- Nation-wide compulsory water fluoridation;

- A national program of dental health education;

- An incremental program of comprehensive dental services for children;

- Expansion of the nation's dental educational capacity and greatly increased government funding for construction and operating assistance to educational institutions;

- Accelerated development of training programs for dental auxiliary personnel;

- Realistic incentives to encourage hospitals and like institutions to provide dental service as an integral part of comprehensive care; and

- Sufficiently flexible funding and payment systems from which the most efficient arrangements may be determined by experience and consumer choice.

Doctor Bernier said that dental health is essential to total health and that all programs that propose comprehensive health services of high quality must, therefore, include dental care.



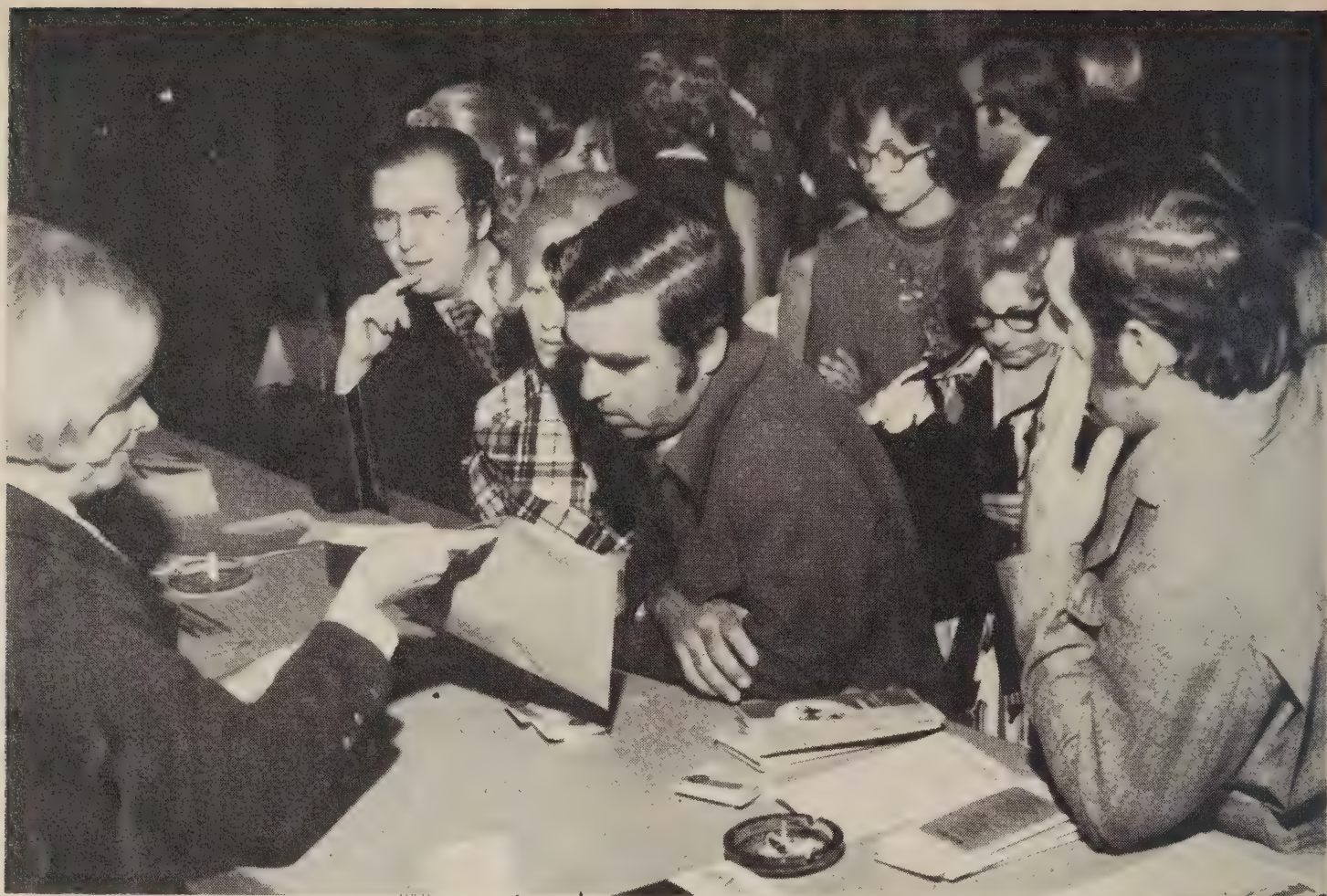
Award winners in the CDA student table clinic competition pose with President Louis Bernier and H. M. Thornton, chairman of the Board of Dentsply International. The winning students are Renaud Turcotte, John St. Germain, Richard Grenkow, D. K. Russell, R. A. Wiggins and J. A. Accursi.



| TEETH | SERVICES RENDERED           | MIN. | CHARGE | CREDIT | PAID |  |
|-------|-----------------------------|------|--------|--------|------|--|
|       | FMXK & Exam                 |      |        |        |      |  |
|       | Study models                | 30   |        |        |      |  |
|       | Px                          | 45   |        |        |      |  |
|       | Consultation                | 35   |        |        |      |  |
|       | 21 3/4 Prep & Imp           |      |        |        |      |  |
|       | 12 F/C " " "                | 45   |        |        |      |  |
|       | 21 & 17 Cem.                | 30   |        |        |      |  |
|       | Rest prep. & final Imp      |      |        |        |      |  |
|       | For Mand. Vitallium Partial | 20   |        |        |      |  |
|       | Framework try-in            | 15   |        |        |      |  |
|       | Site Registration           | 15   |        |        |      |  |
|       | Try-in                      | 15   |        |        |      |  |
|       | Insertion                   | 15   |        |        |      |  |
|       | Px & Exam                   | 45   |        |        |      |  |
|       | 12 Microband Prep & Exam    |      |        |        |      |  |
|       | 13 Microband Prep & Exam    | 15   |        |        |      |  |
|       | 12 & 13 Cement              | 15   |        |        |      |  |
|       | Px & Exam & BLAR            | 45   |        |        |      |  |
|       | Exam - lower partial dent   |      |        |        |      |  |
|       | Relining                    | 15   |        |        |      |  |
|       | Reline Impression           | 15   |        |        |      |  |
|       | Insert partial reline       | 15   |        |        |      |  |

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# L'ADC approuve les plans de l'édifice qui sera édifié à Ottawa

Par une décision qui passera à l'histoire, l'ADC a approuvé les propositions touchant l'architecture et le financement de l'érection des nouveaux quartiers généraux du secrétariat de l'Association, dont l'édifice s'élèvera dans la capitale nationale. La décision, prise au récent Congrès national tenu à Montréal, vient

couronner plusieurs mois de planification et de négociation ainsi que l'acquisition d'un site sur l'autoroute d'Alta Vista dans le secteur est central d'Ottawa. L'achat de l'emplacement, qui voisine celui des quartiers généraux de l'Association médicale canadienne, fut autorisé par le Conseil en 1971. Toute-

fois, la dernière décision à prendre avant de commencer la construction actuelle repose sur la satisfaction des arrangements financiers, incluant un appel à la profession pour établir un fonds de donations.

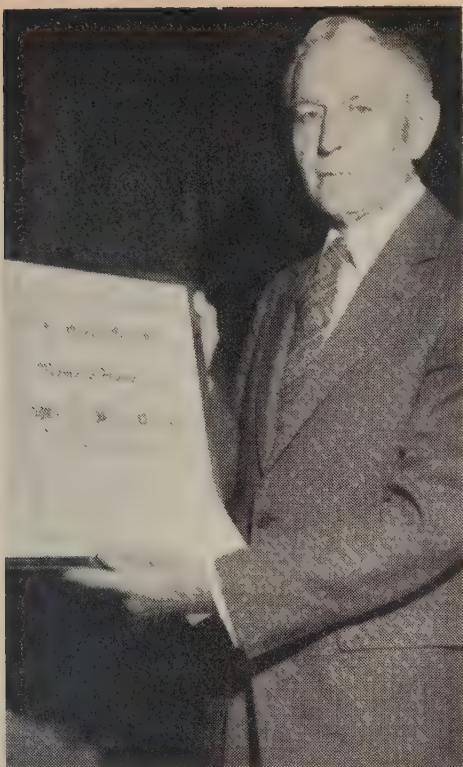
Une résolution connexe, votée à l'unanimité par le Conseil, amende les statuts et les règlements afin de permettre à l'Association de supprimer la limite fixant à \$500,000 la valeur de la propriété immobilière susceptible d'être détenue par l'ADC, en vertu de la loi canadienne des corporations.

L'Association a aussi lancé de nouvelles initiatives importantes concernant les programmes d'assurances, l'utilisation d'auxiliaires dentaires et les traitements dentaires pour les patients dans les centres de soins à séjour prolongé.

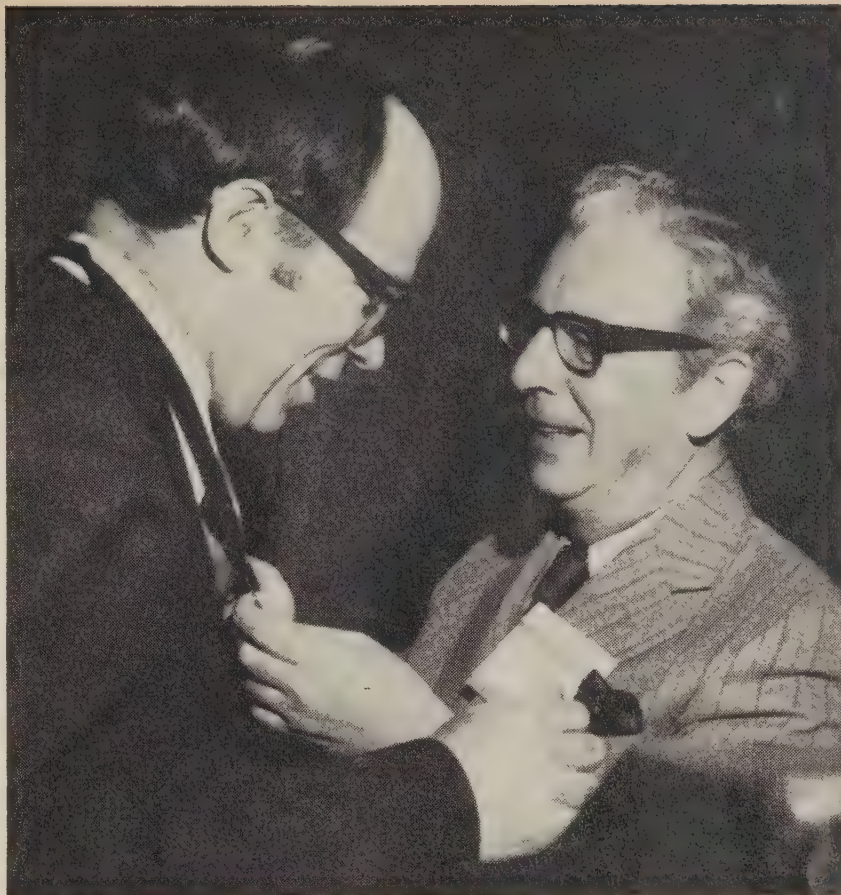
## Définition des termes internat et résidence

Le Conseil des Gouverneurs de l'ADC a approuvé de nouvelles définitions pour les termes internat et résidence. L'internat est "... une forme d'entraînement hospitalier ou clinique d'une durée





Le docteur Robert Le Blanc, de Montréal, a été élu membre honoraire de l'ADC.



Le docteur David K. Peters (à gauche), de St-Jean, Terre-Neuve, succède au docteur Louis Bernier comme 53e président de l'ADC.

d'environ un an conçu dans le but premier de fournir aux diplômés en art dentaire la possibilité d'acquérir une expérience clinique et des connaissances plus avancées que celles acquises lors du cours régulier".

L'autre définition spécifie que "le programme de résidence destiné aux gradués, comporte un entraînement dispensé sous l'autorité d'un hôpital ou d'une université en vue de fournir une formation plus étendue dans la recherche ou une spécialité de la dentisterie".

L'ADC va reconsidérer la question de la représentation au Conseil canadien d'agrément des hôpitaux si le CCAH ne lui offre pas un siège en 1972.

En réponse à un communiqué de la CCAH, le Conseil a stipulé que le Conseil des Services hospitaliers devra considérer les dispositions à prendre relativement aux soins dentaires des malades hospitalisés dans les centres de soins à séjour prolongé, tels que les hôpitaux pour convalescents et malades chroniques ainsi que les foyers pour convalescents, tout et solliciter à cette fin des subventions du gouvernement fédéral.

Le Conseil a aussi approuvé un nouveau document intitulé: "Guide en vue de l'équipement d'un département dentaire hospitalier". La publication sera incorporée dans le guide de l'ADC "Directives pour les services dentaires hospitalières".

### Le Conseil adopte de nouvelles propositions concernant les assurances

Le Conseil a été informé que la participation aux régimes d'assurance de l'Association ainsi qu'aux programmes d'épargne-retraite a atteint son point culminant. Le nombre d'adhérents aux contrats relatifs à l'assurance du revenu et des frais généraux d'exploitation se chiffre à 7,904. On compte 4,711 membres détenant des contrats assurant la responsabilité professionnelle, 2,404 bénéficiant de l'assurance-groupe,

Le Conseil des Gouverneurs de l'ADC s'est réuni pendant les trois jours précédant le congrès national. Les délégués ont considéré plus que 35 rapports et résolutions. Les docteurs Sidney Silver et Gérard de Montigny (à gauche), de Montréal, ont participé à un des quatre comités de référence qui ont aidé le Conseil au cours de ses délibérations.





1,801 des garanties de la protection ad-  
ditionnelle de l'assurance maladie et  
accident de la Croix Bleue, 1,324 de  
l'assurance des soins médicaux et des  
frais d'hospitalisation, 1,300 protégés  
par les bénéfices relatifs à l'ajustement-  
dollar immédiat (ADI) et 1,113 membres  
adhérents au contrat d'épargne-retraite.

Tenant compte que le Collège Royal  
des Chirurgiens dentistes de l'Ontario  
rendra obligatoire l'assurance de la res-  
ponsabilité professionnelle en 1973, le  
Conseil a autorisé le Conseil de l'As-  
surance et des placements à élaborer  
et à mettre en oeuvre un contrat ju-  
melé d'assurance générale, comprenant  
la responsabilité civile des lieux, la res-  
ponsabilité professionnelle volontaire  
(pour les autres provinces qui désirent  
retenir ce contrat sur une base volon-  
taire) ainsi que les bénéfices de l'as-  
surance des propriétaires occupants et  
de l'assurance automobile.

### Terme au projet du regroupement des spécialistes

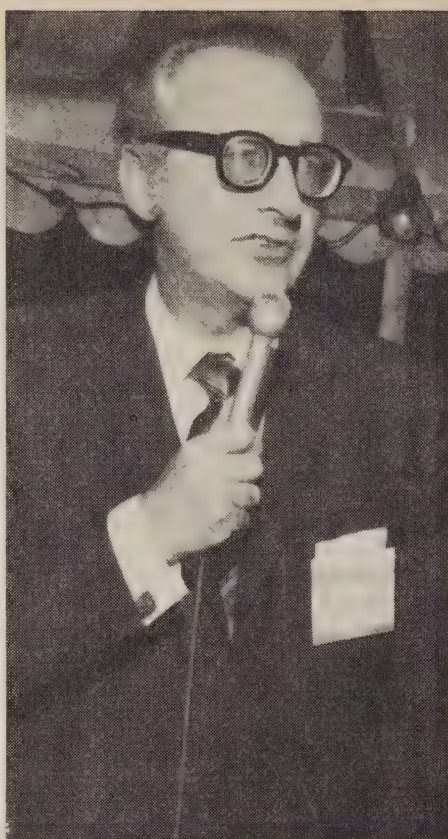
La question du regroupement des spé-  
cialités controversée depuis plusieurs  
années, a été rejetée définitivement à  
la suite de l'appui accordé par le Con-  
seil des Gouverneurs à une recom-  
mandation du Conseil de l'Enseigne-  
ment.

La pathologie buccale a été reconnue  
comme une nouvelle spécialité, portant  
ainsi ce nombre à sept. Toutefois, le  
Conseil a rejeté deux autres proposi-  
tions à l'effet que la radiologie buccale  
et de la dentisterie restauratrice devien-  
nent aussi des spécialités. Une demande  
similaire touchant la santé dentaire pub-  
lique fut reportée à l'an prochain. Les  
gouverneurs ont confié à l'Exécutif la  
tâche de redéfinir les champs d'action  
de la prosthodontie et de la dentisterie  
restauratrice dans le but d'éliminer le  
conflit de juridiction.

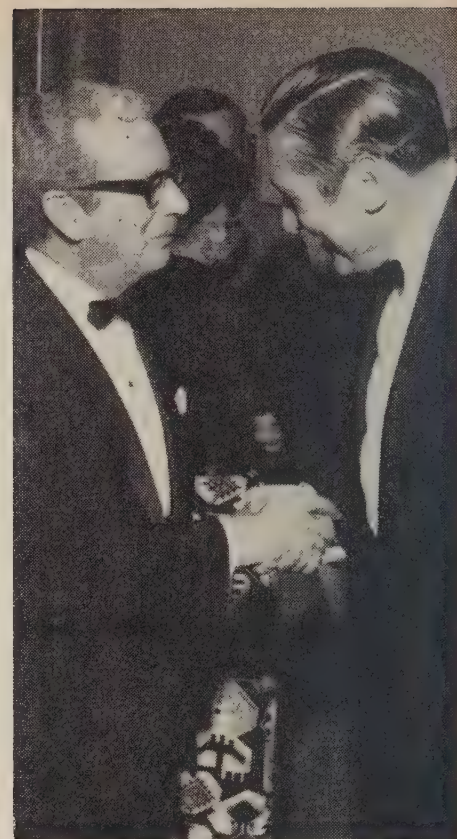
Le Conseil a aussi appris que le  
nombre de membres étudiants avait at-  
teint un nouveau sommet. Un rapport  
du Comité des membres étudiants du  
Conseil de l'Enseignement révèle que  
40 pour cent de tous les étudiants dans  
des écoles dentaires canadiennes ont  
adhéré, de leur plein gré, à l'Associa-  
tion nationale.

Par ailleurs le Conseil a approuvé la  
recommandation de transférer le capital  
du Fonds commémoratif de Guerre au  
Fonds canadien pour l'Enseignement  
dentaire. C'est grâce au FCG que l'on  
attribuait les prix aux meilleurs  
mémoires préparés les étudiants. A

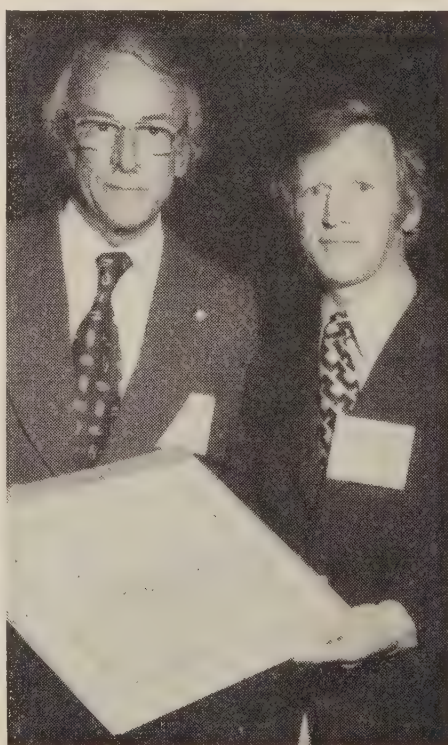
Le docteur Georges Lepage, de  
Lévis, a été nommé membre  
honoraire de l'Association des  
chirurgiens-dentistes du Québec.  
On le voit en compagnie du prési-  
dent de l'ACDQ, le docteur Hubert  
La Belle.



Parmi les visiteurs et invités d'honneur on remarqua le docteur  
Jean Jardiné (à gauche), de Strasbourg, représentant la Confédération  
nationale des Syndicats dentaires français, et le docteur Louis Baume  
(à droite), de Genève, Suisse.



l'avenir les fonds seront consacrés aux  
activités des étudiants membres de  
l'ADC.



### L'Association approuve un programme élaboré pour les auxiliaires

Le Conseil des Gouverneurs a confié  
au Conseil des Services auxiliaires l'or-  
ganisation d'un séminaire comme pre-  
mier pas à l'instauration d'un pro-  
gramme élaboré pour les auxiliaires den-  
taires. Il comporte plusieurs aspects  
comme le programme de formation,  
l'équivalence de la qualification et la  
projection des besoins futurs d'un tel  
personnel.

Dans le but d'encourager l'utilisation  
plus généralisée d'auxiliaires dentaires,  
le Conseil des Gouverneurs a autorisé  
l'achat ou la réalisation de films des-  
tinés à familiariser les membres de la  
profession avec les méthodes les plus  
efficaces pour déléguer des tâches ac-  
crues aux hygiénistes dentaires qui ont  
reçu la formation traditionnelle.

### Décisions du Conseil concernant les résolutions soumises

Le Conseil des Gouverneurs a différé  
sine die une résolution soumise par le  
Collège des chirurgiens dentistes du  
Québec concernant l'amendement des  
dispositions des statuts régissant les  
"membres individuels".



Si l'amendement avait été accepté, la nouvelle section 2, de l'article II des statuts aurait été ainsi formulée: "Les membres individuels comprendront les dentistes licenciés faisant partie d'une corporation membre et dont la candidature a été acceptée par l'Association sur la recommandation des corporations membres ou qui ont été admis comme membres individuels de l'Association par le Conseil exécutif".

Le Conseil a approuvé une résolution de l'Association dentaire du Manitoba à l'effet que: "l'ADC entreprenne des études comparatives sur les soins dentaires fournis par la profession dans chaque province et les honoraires fixés par les services de bien-être, le ministère de la Santé nationale et du Bien-être social (à la fois pour les Affaires indiennes et l'assurance-maladie), le ministère des Anciens Combattants, et que ces renseignements soient colligés, tenus à jour et demeurent disponibles aux corporations membres de l'ADC".

Une autre résolution de l'Association dentaire du Manitoba a été différé sine die. Elle proposait que l'ADC recueille, auprès des compagnies qui assurent les soins dentaires, des données sur le type de régimes disponibles, les groupes qui en bénéficient et que ces renseignements soient fournis aux corporations membres de l'ADC.

Le Conseil a souligné les difficultés que susciterait la tenue d'un tel dossier. Il a aussi noté que le Conseil des services dentaires de l'ADC et la Canadian Association of Accident and Sickness Insurers travaillaient de concert à la préparation d'une carte d'identité indiquant la couverture des soins dentaires.

Le Conseil a aussi:

- approuvé le budget de 1973 prévoyant un revenu de \$557,200, et des dépenses s'élèvent à \$541,200, ce qui laisse un surplus de \$16,000;

- adopté un sceau distinctif constituant la contrepartie visuelle de la Déclaration d'efficacité, qui détermine les limites de l'efficacité d'un dentifrice thérapeutique;

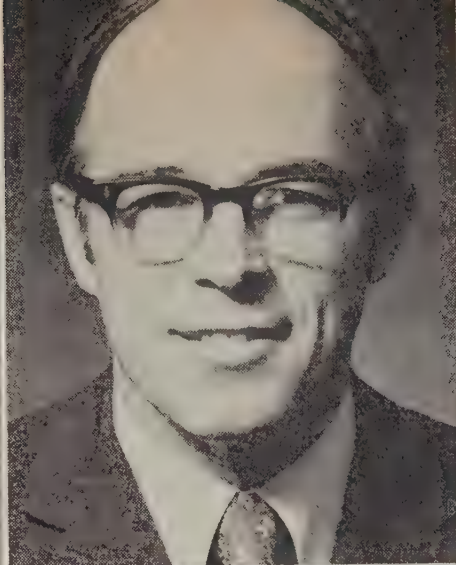
- adopté les recommandations autorisant le Conseil exécutif à élire des membres honoraires, ainsi que les mesures voulues pour convertir le Conseil de l'Immeuble et du Secrétariat en un Comité rattaché au Conseil exécutif;

- adopté une nouvelle politique de participation aux programmes de santé nationale;

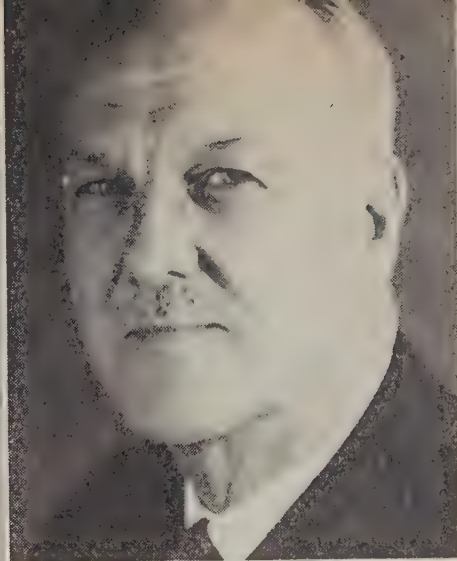
- appuyé les recommandations par lesquelles l'ADC sollicite une représentation dans tous les organismes nationaux, dont l'action est susceptible de présenter des avantages pour la santé dentaire et le public canadien;

- appuyé la proposition de fusionner le Conseil des Services dentaires, le Conseil des Services auxiliaires et celui de l'hygiène publique et de la dentisterie préventive, en un nouveau Conseil de soins de santé;

- décidé que les futurs présidents



David K. Peters



J. E. Abra

## LE DR PETERS DEVIENT PRESIDENT LE DR ABRA EST CHOISI PRESIDENT DESIGNE

Le docteur David K. Peters, de St-Jean, Terre-Neuve, a été officiellement nommé 53e président de l'ADC. Il succède au docteur Louis Bernier, de Québec.

Le nouveau président a fait ses études au Prince of Wales College et au Memorial College de St-Jean. Après avoir reçu son diplôme en art dentaire de l'université de Dalhousie, en 1950, il retourna dans sa ville natale, où il exerce depuis sa profession.

Le docteur Peters a contribué à la cause de l'organisation de l'art dentaire à plusieurs titres. Il fut successivement président de la Société dentaire de Terre-Neuve de 1956 à 1957, correspondant du *Journal de l'Association Dentaire Canadienne* de 1958 à 1962 et membre du Conseil des Gouverneurs de l'ADC depuis 1966. Il fut élu au Conseil exécutif de l'ADC en 1970.

Musicien de talent, le docteur Peters est organiste dans une église depuis 28 ans et il s'est mérité une réputation enviable, sur le plan local et national, comme directeur de chorale.

Le docteur et sa charmante épouse, Dorothy Jane ont deux filles: Ruth, âgée de 16 ans et Jane, âgée de 13 ans, et un fils, David, âgé de sept ans. Le frère de notre nouveau président, le docteur J. H. Peters, exerce sa profession à Goderich, Ont.

Un orthodontiste du Manitoba, le docteur J. E. Abra, de Winnipeg, a été choisi comme président désigné, défaisant ainsi le docteur Ivan Hrabowsky de Ste-Catharines, Ont. Le docteur Abra fut président de l'Association dentaire du Manitoba, président de la section mi-occidentale de l'American Association of Orthodontists et de la Société canadienne des Orthodontistes. Nommé membre du Conseil des Gouverneurs de l'ADC en 1965, il fait aussi partie du Conseil exécutif depuis 1969.

### Conseil Exécutif

Les membres suivants ont été élus Conseil Exécutif: les docteurs H. L. Mussells, de Montréal; J. F. Reid, de Vancouver; et F. T. Wihak, de Regina.

Les membres suivants demeurent membres du Conseil: les docteurs David K. Peters, président; J. E. Abra, président désigné; Louis Bernier, président sortant et Ivan Hrabowsky.

### Autres présidents de Conseils

Furent élus présidents d'autres conseils:

- E. F. Allison, de Calgary, Services auxiliaires;

- W. J. Spence, de Toronto, Communication;

- H. R. MacLean, d'Edmonton, Constitution et statuts;

- R. G. Dickson, de Drumheller, Alberta, Services dentaires;

- K. J. Paynter, de Saskatoon, Enseignement;

- R. M. Le Blanc, de Montréal, Ethique;

- K. C. Bentley, de Montréal, Services hospitaliers;

- D. C. Way, de London, Ont, Assurance et Placements;

- H. C. Bugden, d'Ottawa, Législation;

- J. E. Abra, de Winnipeg, Nominations;

- C. H. McCormick, de Winnipeg, Hygiène publique et Dentisterie préventive;

- N. R. Thomas, d'Edmonton, Recherche.

- W. P. Munsie, de Vancouver, a été élu président du Conseil des Gouverneurs.

Le docteur J. B. Taylor, de London, Ont, a été renommé trésorier pour une période de trois ans.





C'est un célèbre montréalais, le docteur Hans Selyé, qui a prononcé la conférence commémorative Grieve.

de l'ADC, ainsi que leurs épouses soient invités à représenter l'Association officiellement aux frais de l'ADC, à toutes les futures réunions de la FDI;

—approuvé le principe d'élaborer un répertoire et un code pour les services dentaires; et

—approuvé les changements suivants pour les congrès de 1973 et 1976: le congrès de 1973 sera tenu à Vancouver du 11 au 17 octobre et celui d'Edmonton du 12 au 18 septembre 1976.

### **Le docteur Le Blanc devient membre honoraire**

Le docteur Robert Le Blanc, de Montréal, a été élu membre honoraire de l'Association Dentaire Canadienne.

Né à Colombes, en France, de parents canadiens, le docteur Le Blanc a terminé sa formation professionnelle à la faculté de Médecine de l'Université de Bordeaux en 1927. Il exerça sa profession à Perpignan, en France, jus-

qu'en 1940, date de son retour au Canada. Dans les années qui suivirent il exerça sa profession à Sherbrooke, Québec, jusqu'en 1960.

Le docteur Le Blanc a servi la cause de l'art dentaire de plusieurs manières. Il fut élu gouverneur du Collège des chirurgiens dentistes du Québec en 1952. Cinq ans plus tard il devint membre fondateur de l'Association dentaire de la province de Québec.

Gouverneur de l'ADC de 1958 à 1960, il fut aussi nommé secrétaire-archiviste du Collège des chirurgiens dentistes de la province de Québec en 1960. Il résigna ces fonctions en juin dernier.

Le docteur Le Blanc est aussi président du Conseil de l'éthique de l'ADC.

### **Prix de la recherche au docteur Stamm**

Le docteur J. W. Stamm a reçu le prix de la Fondation canadienne de la recherche dentaire pour 1972. Ce prix, décerné cette année pour la seconde fois, lui fut présenté le 4 juin, au cours de la cérémonie inaugurale du Congrès national.

Le docteur Stamm, qui a reçu sa formation à l'Université de Toronto, fait maintenant partie du personnel de la Faculté dentaire de l'Université McGill en tant que responsable du Département de dentisterie sociale. Il est aussi rattaché à la Section d'épidémiologie de la Faculté de médecine de la même université.

### **Invités d'honneur**

Plusieurs visiteurs et invités d'honneur représentant des organismes nationaux et internationaux ont honoré le congrès de leur présence. On notait:

—Le Dr Jean Jardiné, de Strasbourg, France, représentant la Confédération nationale des Syndicats dentaire français;

—Le Dr et Mme Gwynne Lloyd, de Londres, Angleterre, représentant l'Association Dentaire Britannique;

—Le Dr et Mme H. D. Roberts, de St-Jean, Terre-Neuve, représentant l'Association Dentaire Britannique;

—Le Dr et Mme Harold Hillenbrand, de Chicago, représentant la Fédération Dentaire Internationale;

—Le Dr et Mme L. J. Baume, de Genève, Suisse;

—Mme Linda Zambolin, de Dartmouth, Nouvelle-Ecosse, représentant l'Association des Hygiénistes Dentaires Canadiennes;

—Mlle Elaine Wesley, de Lethbridge, Alberta, représentant l'Association des Infirmières et des Assistantes Dentaires Canadiennes;

—M. et Mme M. E. Bower, de Toronto, représentant le Fonds canadien pour l'enseignement dentaire; et

—Le Sénateur et Mme O. H. Phillips, d'Ottawa.

Après les cérémonies d'ouverture, un moment de détente pour le docteur et Mme Hubert La Belle et le docteur et Mme Irwin Margoese, de Montréal.







Etaient en vedette durant la soirée du président un détachement de la Compagnie franche de la marine et les Danseurs du Saint-Laurent, un groupe qui se spécialise dans les danses folkloriques.



#### *Conception de la prothèse partielle*

La conception des prothèses partielles constitue la phase de la pratique dentaire la plus négligée et la plus mal utilisée.

C'est ce qu'affirme le Lt.-Colonel P. S. Sills, de la Base des Forces canadiennes de Borden, Ont, ajoutant que "plusieurs dentistes ont la fausse impression que les principes de conception sont de nature technique et peuvent être conséquemment confiés au personnel auxiliaire."

Il demande instamment aux dentistes: —de fournir au laboratoire dentaire sous surveillance, des modèles diagnostiques, ainsi que des instructions détaillées et exactes en vue de la conception de la prothèse, et

—d'établir la corrélation entre les principes fondamentaux de surveillance, la fonction composante, le contrôle des contraintes et du système de levier masticatoire, la préparation de la bouche et les exigences occlusales à l'égard de la fonction biochimique.

## **CINQUANTE COMMUNICATIONS ET CONFÉRENCES AU CONGRÈS NATIONAL**

#### *Protection de la pulpe*

La chaleur produite durant la préparation de la cavité dentaire constitue virtuellement l'élément irritant le plus dangereux pour la pulpe dentaire, d'après un autre dentiste des Forces canadiennes.

Le major J. O. Bourget, de la Base des Forces canadiennes à Borden, Ont, mit en garde ses auditeurs sur la taille, la forme et la rotation des instruments destinés à tailler et à meuler, ainsi que sur le mécanisme de refroidissement qu'ils utilisent.

Les tubulis dentinaires et les bords marginaux de la restauration doivent être signeusement scellés afin de réduire toute irritation virtuelle pouvant être occasionnée par la salive, les médicaments ou les substances utilisées pour la restauration. Les lésions invisibles telles que les fissures dans l'émail, la dénaturation de la dentine ou un état d'inflammation chronique, ajouta-t-il, sont susceptibles de produire une réaction ultérieure de la pulpe.

Le major Bourget précisa qu'il faut prévenir le vieillissement prématuré de

Près de 50 communications, conférences et démonstrations ont constitué le programme scientifique présenté durant le congrès national de l'ADC à Montréal.

Voici quelques extraits des communications présentées:

#### *Contrôle de la maladie périodentaire*

Un périodontiste attaché au Service dentaire des Forces armées canadiennes a déclaré que la maladie périodentaire inflammatoire affecte la presque totalité de la population. La maladie attaque les gencives au cours des premières années de la vie adulte. L'insuffisance d'hygiène buccale et du contrôle de la plaque permet à l'inflammation de s'étendre sous la jonction émail-cément. Cette évolution de la maladie s'accompagne de la destruction graduelle de l'appareil de fixation et aboutit à la perte de la fonction dentaire aux environs de l'âge moyen ou dans les années subséquentes.

D'après le major L. A. Reynolds, de la Base des Forces canadiennes de Borden, Ont, il est impossible de contrôler la plaque sans la collaboration du patient. La dispersion efficace des colonies bactériennes dans la région cervico-radiculaire dépend de la manière qu'il apprend à utiliser les substances révélatrices, la soie dentaire non cirée et la brosse à dents.

Le major Reynolds souligne que la motivation du patient et le contrôle de la plaque constituent aussi des éléments essentiels pour assurer le succès de la chirurgie périodentaire, comprenant aussi la réduction des culs-de-sac afin que le patient puisse contrôler la plaque bactérienne dans la région de l'attachement épithélial.



la pulpe, à cause de la diminution irrévocable de sa capacité restaurative, qu'entraîne chaque inflammation successive. La formation de la dentine tertiaire débute lentement et son caracté-

rière incertain rend les mesures thérapeutiques plus difficiles.

"La dent humaine est un organe remarquablement résistant, mais ce n'est pas une excuse pour en abuser."

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## LE DR BERNIER MET EN ÉVIDENCE UNE FOULE DE PROBLÈMES DE SANTÉ

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Au cours d'une conférence de presse tenue à l'occasion du congrès national de l'ADC, le docteur Louis Bernier a traité des problèmes majeurs de santé auxquels est aux prises la population canadienne.

Il a souligné qu'il est paradoxal que tout en possédant les connaissances et les moyens nécessaires à la prévention et au contrôle de la plupart des affections buccales, la population présente un nombre aussi élevé de maladies de la bouche.

### *Fluoration*

Le docteur Bernier a souligné que la fluoration vient en tête de liste dans la conception d'un programme de santé dentaire: "Toutes les organisations nationales et internationales de santé s'accordent pour reconnaître que, grâce aux fluorures, les dents acquièrent une meilleure résistance à la carie. Ce fait s'explique par le pouvoir que les fluorures possèdent de durcir les dents, les rendant ainsi plus durables. Par conséquent, je suis catégorique sur le point suivant: tant que tous les systèmes publics de distribution d'eau ne seront pas soumis à la fluoration, notre nation se verra forcée de supporter inutilement le coût de soins dentaires excessifs".

Il a noté que plusieurs municipalités ont rejeté cette mesure à cause des informations erronées qu'elles ont reçues de personnes qui déforment les faits. Dans la plus grande ville du Canada, les enfants sont privés des bienfaits sanitaires provenant de la fluoration et leurs parents, des économies qui en découlent, ceci parce que le maire de Montréal croit personnellement que ce traitement de l'eau équivaut à la violation des droits du citoyen.

"La position du maire, a-t-il dit, s'avère peu soutenable si l'on considère qu'à Montréal, chez les jeunes, on retrouve en moyenne six caries et deux dents manquantes. De plus, le tiers du nombre des filles et le quart du nombre des garçons présentent des malocclusions et sont menacés de déformations faciales. . . . Cette attitude du maire a coûté des millions de dollars aux résidents de Montréal et plus particulièrement aux parents d'enfants d'âge scolaire".

### *Les prothèses dentaires*

Au cours de la même conférence le président-sortant a fait remarquer que dans certaines provinces, principalement en Ontario et en Nouvelle-Ecosse, les résidents subissent un barrage de publicité relativement à la question des denturologistes. "Plus souvent qu'autrement, le public ne connaît pas tous les points que cette question comporte, et encore, on les lui présente d'une façon telle qu'il ne s'en trouve que plus confus".

Il a décrit l'écart de formation scientifique existant entre le chirurgien-dentiste et le denturologiste et a averti la population du danger de se faire traiter directement par des denturologistes.

Le docteur Bernier a aussi traité de certaines propositions suggérées dans le domaine dentaire tant en Ontario qu'au Québec: "Les chirurgiens-dentistes de l'Ontario, conscients de la nécessité d'apporter des améliorations, ont recommandé au gouvernement l'introduction d'un cours d'un an pour la formation de techniciens dentaires licenciés. Ce cours en ferait des thérapeutes en prothèses dentaires et les autoriserait à prendre les empreintes et articulations; de plus, ils pourraient faire les prothèses complètes, sous la surveillance d'un chirurgien-dentiste. Ce projet a pour but de fournir des services dentaires de qualité, ceci en permettant une collaboration efficace entre le chirurgien-dentiste et des personnes formées adéquatement pour l'assister; de ce fait, le coût des services serait moindre et le patient jouirait quand même de toute la protection professionnelle du chirurgien-dentiste".

Le docteur Bernier a ensuite abordé la question du projet de loi des denturologistes déposé par le gouvernement du Québec. Il s'est prononcé contre la section du bill habilitant le denturologiste à vendre, fournir, ajuster ou remplacer des prothèses de toutes sortes. "Cette autorisation est dangereuse car les prothèses partielles y sont incluses et l'ajustement de celles-ci s'avère plus compliqué et exige des connaissances biologiques très poussées que le technicien ne possède pas. Il s'agit, dans ce travail minutieux, d'évaluer la qualité et la résistance des dents naturelles qui supporteront les dents postiches; on doit aussi examiner à l'aide

de radiographies la forme et la grosseur des racines et l'état de santé des tissus de soutien. Toutes ces considérations entrent en jeu pour choisir les dents à conserver et déterminer la forme de la prothèse partielle. Une prothèse partielle mal ajustée ou supportée par des dents inaptes à une telle fonction peut causer des dommages irréparables.

"Si ce projet devenait loi sous sa forme actuelle, tout denturologiste indépendant serait autorisé à assumer des responsabilités que seulement le chirurgien-dentiste peut exercer adéquatement. Ceci serait préjudiciable à l'intérêt public et présenterait un sérieux danger pour la santé de la population québécoise.

"Nous croyons que les techniciens dentaires désireux de transiger directement avec le public devraient recevoir une formation plus poussée. Après avoir complété avec succès cet entraînement, on pourrait les autoriser à oeuvrer directement auprès des patients, sous la surveillance d'un chirurgien-dentiste".

### *Un programme de santé buccale à l'échelle nationale*

Résumant ses commentaires sur cette question de la prothèse, le docteur Bernier a exprimé sa crainte sur la publicité faite autour de ce sujet. A son avis elle distrait le public de l'attention que l'on doit apporter pour trouver une solution à ses pressants besoins.

Il a recommandé un programme de santé buccale à l'échelle nationale qui comporterait les éléments suivants:

- la fluoration obligatoire des eaux;
- un programme d'éducation en matière d'hygiène buccale;
- un régime progressif de services dentaires complets pour enfants;
- l'extension des possibilités d'éducation dentaire et une augmentation considérable des fonds versés par les gouvernements pour la construction et l'administration des institutions d'éducation;
- l'accélération de la mise sur pied de programmes de formation du personnel auxiliaire;
- des dispositions propres à encourager les hôpitaux et institutions connexes à offrir les services dentaires comme partie intégrante de l'ensemble des soins;
- des accords financiers assez souples pour permettre de déterminer avec le plus d'efficacité possible des arrangements compatibles avec l'expérience et le choix du consommateur.

Le docteur Bernier a terminé sa conférence de presse en exprimant l'opinion que la santé buccale est essentielle à la santé générale de la population canadienne, et que par conséquent un programme de santé de première valeur devrait englober les soins dentaires.



# Dentistry in the news

## Canada and the Provinces

### Ontario to legalize mechanics; government rejects task force advice

Ontario will move to license and permit dental mechanics to deal directly with the public, Robert Welch, secretary for social development, said June 26.

He told the legislature that "a new health practitioner to be known as a dental technologist" would be created by legislation to be introduced in the fall session. During the summer a committee will be appointed to draw up standards which dental mechanics will have to meet. It will likely include three members of the public, one dentist, one dental technician, one dental hygienist and, once the licensing program is under way, a dental technologist.

The Ontario government's decision is contrary to a major recommendation of the Ontario Council on Health's task

force report on dental technicians, which stated that "no dental auxiliary personnel be permitted to work directly with the public except under the direct supervision of a dentist."

The report of the task force, which was also released June 26, was prepared by three lay people (see also March CDA Journal, p 93). It noted that permitting dental mechanics to deal directly with the public helps to curb the cost of dentures but cautioned that "the benefit from using this method of obtaining a healthy competition is outweighed by the potential danger to the public in the health aspects of the method."

"We feel strongly that the ultimate responsibility for the health of the dental patient must reside solely with the dentist," the report warned.

It also called for a substantial increase in fines for illegal practice of dentistry and for the use of injunctions. Questioned on this point, Mr. Welch said that under a new dental act there would be a provision for increased fines for unauthorized practice.

### Covered services defined for Quebec's child dental care plan

Quebec's proposed program of dental care for children up to age seven moved a step closer to reality May 31 when the government announced the services which are to be covered. They include:

Preventive services: teaching and demonstration of oral hygiene; dietary analysis; prophylaxis and topical application of fluorides.

Restorative services: amalgam restorations; silicate, resin or composite restorations for anterior teeth; quick-curing acrylic crowns, stainless steel crowns, polycarbonate crowns, celluloid crowns and post crowns.

Endodontic services: pulpotomy; root canal therapy; replantation of displaced teeth; emergency opening of the pulp chamber.

Surgical services: all services covered under Bill 8 and those included under Title X of the Medical Care Act. Tooth extractions are not covered for children under age five.

Legislation providing free dental care was passed through the Quebec National Assembly a year ago but negotiations have been slow. The coming months will be devoted to further discussions on fees for each of the services to be covered. There are some 600,000 children in the eligible age group in Quebec.

## Fluoridation

### Quebec municipalities must fluoridate by 1973

Quebec municipalities have until the fall of 1973 to begin fluoridating their drinking water supplies under terms of legislation introduced June 16 in the National Assembly.

But Claude Castonguay, social affairs minister who presented the bill, said provisions for referendums were included in case some municipalities strongly opposed compulsory fluoridation.

Nine dentists received fellowships from the Royal College of Dentists of Canada at a convocation in Montreal June 5. Seated in the picture, left to right, are Israel Kleinberg, Rev. Father Malcolm Hughes, W. F. Walford, J. E. Speck (secretary-registrar-treasurer), W. H. Feasby (retiring president), F. W. Lovely (vice-president), A. M. Hayes, H. T. Oliver and A. W. S. Wood (president). Standing, left to right, are Jean Nadeau, Guy Maranda, G. E. Longhurst, H. Phillips, R. L. Moran, J. H. Gryfe, G. K. Hurd, D. L. Catena, E. Marks, P. H. Trester, J. D. Spouge, J. W. Neilson, G. S. Beagrie, A. D. Fee and A. D. Sparrow.





## YOUR SECURITY

*This is the fourth in a series of articles on insurance and investment programs available through the dental profession.*

It's only natural to put off thinking about what will happen after you're gone, and for this reason estate planning is a subject most people approach most reluctantly.

It's made easier, however, by realizing that what you're really doing in estate planning is making sure that the family you love and have worked for throughout your lifetime will be adequately protected in the future.

The most logical starting point is making a will. Because one's assets are almost invariably greater than one realizes, it can impose a difficult burden on your heirs if you die intestate (without a will).

Most insurance agencies, accountants and trust companies such as the Royal Trust (which administers the CDA Retirement Savings Plan) have literature and will forms available. All you need to make a will is two witnesses.

The first step is to make an inventory of your worth, and to decide how you wish your assets to be disposed. This is where legal and financial assistance is often required, and a trust company or other professional will serve as your executor. There is no fee until the estate is dispersed.

Now that the federal government has withdrawn from the estate tax field as at December 31, 1971, all provinces, with the exception of Alberta, have indicated that they will be bringing in succession duty legislation.

The Ontario Succession Duty Act, for example, now exempts estates under \$100,000 from succession duties for all beneficiaries. However, the value of pension plans are taken into consideration when arriving at the gross value of an estate. If a person has been contributing to a pension fund over a number of years, the value of an estate can very quickly exceed the \$100,000 limit.

The new Ontario Succession Duty Act provides an exemption for surviving spouses of \$500,000. Previous exemption was \$250,000. There has been no change in the exemption of \$15,000 for minor children or the \$25,000 for orphans. It also doubles the rate of succession duties payable on estates exceeding these amounts.

Some examples of succession duties payable are as follows:

| Estate    | Duty payable when estate goes |                                |
|-----------|-------------------------------|--------------------------------|
|           | Outright to spouse            | Outright to 2 children over 18 |
| \$125,000 | nil                           | \$ 12,500                      |
| 300,000   | nil                           | 57,000                         |
| 500,000   | nil                           | 108,300                        |
| 550,000   | \$18,000                      | 122,760                        |
| 600,000   | 37,000                        | 138,000                        |

After taking into consideration these tax changes, the question remains, "How should I plan my estate?"

One would assume that any estate under \$500,000 should be left outright to the surviving spouse. It is interesting to note, however, from the examples of tax calculations mentioned above, that the overall tax is less if a trust estate is set up under the terms of the will.

For example, an estate worth \$300,000 left outright to a spouse incurs no succession duties, but when the surviving spouse dies, the succession duties amount to \$57,000 if left to two children over 18 years of age. If an estate of \$300,000 was left in trust, where the two children are under 18 years of age, the succession duties would be only \$21,394 thus a saving in tax of \$35,000.

What about gifts? An individual in Ontario may give up to a maximum of \$2,000 each to five people in any one year which would amount to the total allowable of \$10,000. It must be kept in mind that all gifts given within a 15 year period prior to death will be brought back into that person's estate to calculate the value of the assets of the estate for succession duty purposes. Any gift tax paid on gifts will be applied as a credit against the succession duties owing.

When taking out new life insurance, it should be kept in mind that the ownership of the insurance, for succession duty purposes, will depend directly on who pays the premiums.

Trust companies, such as Royal Trust, have experienced officers who assist people with planning their affairs and their estates, at no cost or nominal cost and the members of the dental association should feel free to make contact with these representatives.

*Next article: How much life insurance should a dentist carry?*

Referendums will be held if 10 per cent or 5,000 members of a municipality request it. Results of the referendum are valid only if at least 50 per cent of the population votes. If at least half of those voting reject fluoridation, the

municipality may set it aside for five years.

Mr. Castonguay said the Social Affairs Department has included the sum of \$365,000 in its 1972-73 budget for subsidies to municipalities wanting to

purchase fluoridation machinery. Equipment to fluoridate a water supply for 100,000 to 200,000 people costs about \$7,000. Per capita expense of running the system is about 10 cents a year.

Earlier this summer, several profes-



sional associations, including the Canadian Dental Association, threw their support behind a Quebec Dental Hygiene League campaign to promote fluoridation. On June 15, the Canadian Medical Association placed its support behind a resolution that all provinces be urged to enact compulsory fluoridation laws.

About 12 per cent of Quebecers now drink fluoridated water, compared with more than half the population in Ontario and Manitoba.

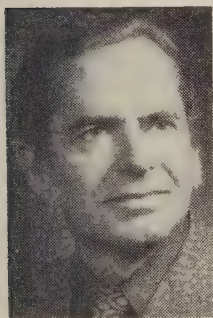
The new Quebec legislation provides fines of \$1,000 for individuals and \$5,000 for municipal or other corporations contravening the law.

## Dental Education

### Associate editor named to Laval post

Paul Simard, Lévis, Que., has been named director of the School of Dental Medicine, Laval University, Quebec City, succeeding Gustave Ratté.

Doctor Simard, who has been secretary of the Laval school up to now, was appointed associate editor of the *Journal of the Canadian Dental Association* earlier this year. He earned a DDS from the Université de Montréal in 1944. In 1958 he obtained a diploma in dental public health from that university's School of Hygiene.



Paul Simard

A founding editor of the *Quebec Dental Journal*, Doctor Simard is also an honorary member of the Quebec Dental Surgeons Association.

### Doctor Kasloff accepts new post in Georgia

Zack Kasloff, associate professor of restorative dentistry at the University of Manitoba, has been appointed to a similar position at Emory University School of Dentistry in Atlanta, Georgia.

Doctor Kasloff leaves the University of Manitoba where he taught for 12

years, latterly as head of the Sections of Fixed Prosthodontics and Dental Materials.

A member of the CDA Council on Research, Doctor Kasloff was also chairman of the council's Committee on Standards for Dental Materials and Devices.

## Public Health

### Quebec summer clinics receive \$200,000 grant

The University of Montreal and McGill University have received nearly \$200,000 in grants from the province of Quebec for summer dental clinics aimed at underprivileged children in Montreal.

The University of Montreal is receiving \$128,000; McGill receives \$65,500. Last year the two universities shared about \$130,000 in grants.

The summer dental clinics are run by students supervised by recent graduates and university staff. Their aim is to improve the dental health of underprivileged children in Montreal.

The University of Montreal also operates a dental care program for adolescents aged 13 to 15. This program is aimed at educating young people about care of their teeth.

## CDA Retirement Savings Plan

Unit values of the Canadian Dental Association Retirement Savings Plan stood as follows on June 30:

*Fixed Income Fund* \$12.863;

*Common Stock Fund* \$28.261.

Total assets (market value) of the plan were \$13,422,205.08.

The following portfolio purchases occurred during the preceding month: 4,000 shares Dominion Foundries and Steel and 1,500 shares Hudsons Bay Oil and Gas.

For further information please write to CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto 180, Ont.

## Awards and Appointments

Named an honorary member of the Quebec Dental Surgeons Association is **Georges Lepage** of Lévis, Que. Doctor Lepage has also been named interna-

tional vice-president of the International Federation of Francophone Dental Associations.



A. W. S. Wood

Toronto paedodontist **A. W. S. Wood** was recently elected president of the Royal College of Dentists of Canada, succeeding W. H. Feasby of London, Ont. Doctor Wood is a past president of the Canadian Society of Dentistry for Children and the Canadian Academy of Paedodontics.

**J. G. Perreault** of Montreal was recently elected president of the Canadian Academy of Paedodontics. R. S. Margolis of Edmonton is vice-president and B. A. Richardson of Kitchener, Ont., is secretary-treasurer.

**D. J. O'Connor** has succeeded G. C. Travis as president of the Ottawa Dental Society. J. A. Alexander is secretary and N. S. Watkins was elected treasurer.

The new president of the Essex County Dental Society is **A. A. Stoyshin**. He succeeds A. H. Kupsov. W. W. Meloche was elected vice-president and S. M. Mankodi and D. V. Allen are treasurer and secretary respectively. All are Windsor dentists.

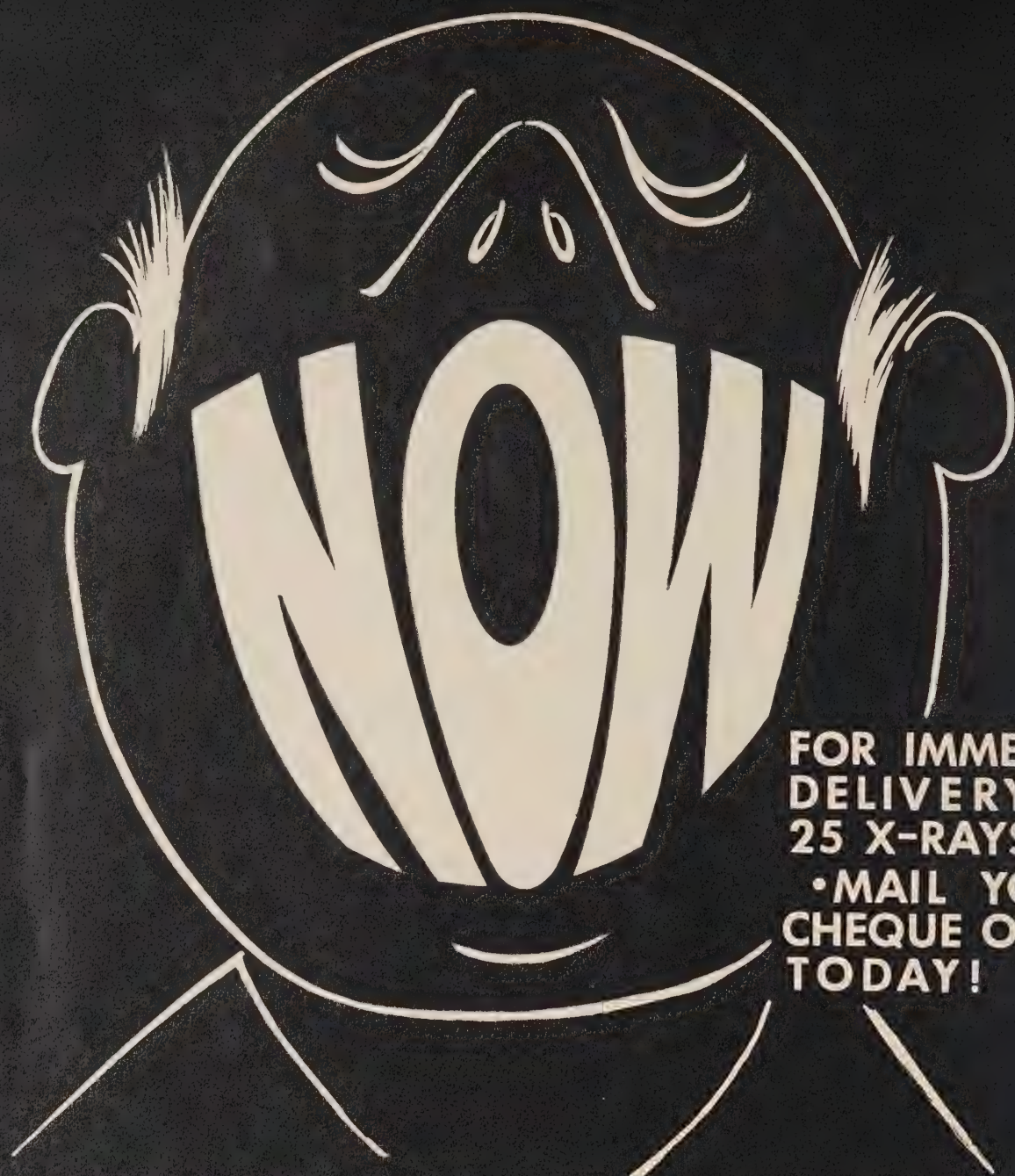
## Deaths

Jacobs, Sidney. 47. Toronto. University of Toronto, 1947. 19-6-72. Survived by Vicki (wife); Judy (daughter); Mrs. Celia Jacobs (mother); Rubin (brother); and Mrs. Percy Rubenstein (sister).

Kemp, Frederick Falls. 77. Ottawa. Royal College of Dental Surgeons of Ontario, 1922. 20-6-72. Survived by Beatrice Electra (wife); Groves, Alfred and Vinnie (brothers); and Inda (sister).

Meredith, Arthur Lloyd. 72. Windsor, Ont. Royal College of Dental Surgeons of Ontario, 1924. Survived by Ethel S. (wife); Mrs. D. N. Major, Mrs. D. E. Penney and Susan (daughters); Mrs. P. H. Fox (sister); and three grandchildren.





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X30 est entièrement différent de n'importe quel autre film dentaire déjà existant. Il élimine la nécessité de la chambre noire.

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## L'Association

### Concours du Mémorial de guerre de l'ADC; l'Association honore les lauréats

Perry Goldberg, de l'université McGill de Montréal et G. G. Morrison, de l'université de la Colombie britannique de Vancouver, ont remporté cette année les prix du concours du Mémorial de guerre de l'ADC. Le premier prix de \$200 fut décerné à Perry Goldberg et le second de \$100 à G. G. Morrison.

Le sujet du concours 1971-72 portant sur "Les facteurs iatrogènes des maladies périodentaires".

Ce concours ouvert à tous les non diplômés au stade de leur année terminale dans les Ecoles dentaires canadiennes est réalisé, depuis deux décennies, sous les auspices de l'Association dentaire canadienne. Les prix proviennent de l'accumulation des intérêts du Fonds du Mémorial de guerre constitué par les contributions des dentistes canadiens pour honorer la mémoire de leurs confrères tombés au champ d'honneur durant les deux dernières guerres.

## Le Canada

### La formation des infirmières dentaires de la Saskatchewan débute en septembre

On annonce que le premier groupe d'infirmières dentaires qui participeront à la réalisation du programme de soins dentaires aux enfants, prévu pour la Saskatchewan, commenceront leur stage de formation en septembre.

Monsieur Gordon MacMurchy, ministre de l'Éducation, ainsi que M. Walter Smishek, ministre de la Santé, ont déclaré conjointement le 24 mai dernier que l'inscription initiale s'élèvera à environ 35 étudiants, pour atteindre éventuellement 60 ou 75 étudiants à mesure

que le programme prendra de l'ampleur.

La législation entérinant le recours aux infirmières dentaires fut promulguée durant la dernière session de l'assemblée législative.

Le programme de formation comprendra un cours de deux ans donné à Regina, dans le cadre du programme des sciences de la santé du nouvel Institut des Sciences et des Arts appliqués.

Quand le programme aura atteint son plein développement, environ 175 infirmières dentaires seront affectées à la distribution des soins dentaires de base destinés aux enfants au-dessous de 12 ans. Les premières infirmières dentaires seront vraisemblablement en exercice à l'automne de 1974.

### Une Ecole de thérapie dentaire dans les Territoires du Nord-Ouest

On annonce l'ouverture d'une école de thérapeutes dentaires dans les Territoires du Nord-Ouest, la première du genre au Canada.

Cette école, une réalisation conjointe du gouvernement fédéral et de celui des Territoires du Nord-Ouest, s'ouvrira à Fort Smith.

Le docteur K. W. Davey, professeur de pédodontie à l'Université de Toronto, dont les services ont été prêtés au ministère de la Santé nationale et du Bien-être social, en assumera la direction.

Les cours de thérapie dentaire auront une durée de deux ans et le docteur Davey prévoit que 12 élèves seront admis en première année.

La législation autorisant les thérapeutes dentaires à pratiquer dans les Territoires fut promulguée au cours de la session d'été 1971 du Conseil des Territoires.

Le nouveau programme a comme principal objectif de résoudre l'un des programmes majeurs des soins de santé dans cette partie du pays. En effet, on ne compte que trois dentistes pratiquant à temps plein pour une po-

pulation de 33,000 dispersée dans une région de 1,300,000 milles carrés et représentant le tiers de la superficie du pays. Les responsables du projet souhaitent que les thérapeutes dentaires, exerçant sous la direction d'un dentiste, viennent combler une grave lacune en prodiguant régulièrement les soins dentaires dans les centres de colonisation du nord.

L'un des principaux objectifs du projet consiste à recruter des étudiants originaires de la région. Ainsi, pour la première fois, les Indiens les Esquimaux et les Métis auront l'occasion d'acquiescer chez eux une formation qui leur permettra de contribuer par la suite à l'amélioration de la santé de leurs concitoyens.

### Loi 65: les missions régionales sont en fonction

Dix des 12 missions régionales créées par le ministère des Affaires sociales du Québec en vue de favoriser l'implantation des Conseils régionaux de la santé et des services sociaux (CRSSS), sont entrées en fonction au cours des dernières semaines et ont tenu leurs premières réunions.

Ces missions régionales sont celles du Bas - Saint - Laurent - Gaspésie, de Québec, de Trois-Rivières, de l'Estrie, de Montréal, de l'Outaouais, du Nord-Ouest québécois, du Saguenay-Lac St-Jean, de la Rive-Sud et des Laurentides.

Chacune des missions régionales doit assurer la mise sur pied d'un Conseil régional d'ici la fin du mois d'octobre prochain, selon les exigences de la Loi sur les services de santé et les services sociaux. Les missions agissent en étroite collaboration avec le groupe de travail ministériel, présidé par monsieur Gérard Nepveu, sous-ministère adjoint aux Affaires sociales, responsable de l'implantation de la nouvelle loi.

Le rôle du futur conseil régional consiste à susciter la participation de toute la population à l'administration et au fonctionnement des organismes de santé et de services sociaux, et à servir de lien entre le public, le ministère des Affaires sociales et les établissements pour développer les services en fonction des besoins de la population.

La première tâche des missions régionales est de contacter les diverses catégories d'établissements et les groupes qui participent à la formation du Conseil régional. Ce travail d'information et de sensibilisation devra se faire notamment auprès des maires des municipalités de la région, qui doivent élire quatre membres au conseil d'administration, des universités, qui ont droit à deux délégués, et des collèges d'enseignement général et professionnel (CEGEP) de la région, qui en nomment un. Leur action s'étendra également aux CLSC, aux centres hospitaliers, aux centres de services sociaux



et aux centres d'accueil, puisque la Loi 65 accorde à chacun de ces groupes trois représentants au Conseil d'administration du CRSSS.

Les missions dresseront en plus la liste des groupes socio-économiques de leur région. Ces groupements ou associations seront en effet consultés pour la nomination par le lieutenant-gouverneur en conseil de deux représentants au conseil d'administration du CRSSS. Ces nominations seront faites dans l'intention d'équilibrer la formation du Conseil régional en y assurant la présence de groupes, de secteurs d'activités ou de toute catégorie sociale qui en seraient absents.

Chaque mission régionale est animée par un agent de liaison du ministère des Affaires sociales. Elle est composée d'un représentant de chacun des organismes suivants: l'Association des foyers pour adultes (AFA), l'Association des hôpitaux de la province de Québec (AHPQ), l'Association provinciale des institutions pour enfants (APIE), les Conseils de bien-être régionaux (CBER) ou, selon le cas, les Conseils de développement social (CDS), les Conseils régionaux de développement (CRD) et la Fédération des services sociaux à la Famille (FSSF). Ces organismes s'intéressent à des secteurs d'activités directement affectés par la Loi 65.

### **Ottawa restreint la publicité sur les vitamines**

Le gouvernement fédéral se propose d'exercer un contrôle plus sévère sur la publicité relative aux produits vitaminés pour les enfants, transmise par le truchement de la radio et de la télévision. Le nouveau règlement est en vigueur depuis le 1er juin.

Les autorités de la Section de la protection de la santé du ministère de la Santé nationale et du Bien-être social ont élaboré cinq directives demandant aux agences publicitaires d'éviter:

- d'exagérer les avantages possibles des produits vitaminés ou de les présenter comme des "objets d'amusement" ou comme des substances "dont la consommation est un signe de maturité";

- de laisser entendre que tout le monde a besoin de vitamines;

- de montrer des enfants absorbant eux-mêmes ces médicaments;

- d'exercer une pression sur les enfants afin qu'ils demandent instamment à leurs parents d'acheter ces produits afin d'obtenir des primes spéciales;

- d'exploiter le prestige de personnes ou de personnages connus sur la scène nationale pour la présentation de produits vitaminés destinés aux enfants.

Avant d'être diffusée, la publicité en faveur de tous les produits assujettis à la Loi des aliments et drogues devra être approuvée par le ministère de la Santé nationale et du Bien-être social.

### **Quatre lauréats honorés par l'ADC à l'Exposition scientifique**

Betty Carpick et Linda Perry de Lynn Lake, Man, élèves de 9e année, qui exposaient conjointement, ainsi que Doug Gourlay et Gary Brown, d'Aurora, Ont, élèves de 10e année, qui exposaient aussi conjointement, se sont mérité les deux prix offerts par l'Association dentaire canadienne tenue au Collegiate Institute and Technical School de Sarnia du 9 au 13 mai dernier. Le choix pour l'attribution des prix a été déterminé, au nom de l'ADC, par le docteur T. K. Storey, de Sarnia.

L'Association dentaire canadienne est l'un des organismes parrainant la Fondation des jeunes scientifiques, qui encourage l'activité scientifique des jeunes à l'extérieur des cadres du programme d'études scolaires régulier et organise une exposition annuelle. Les prix attribués comportent une somme de \$100 à chaque lauréat ainsi que l'offre de l'assistance nécessaire pour découvrir le matériel de recherche pouvant s'appliquer à de futurs projets.

## **Chronique internationale**

### **Les Canadiens participeront au Congrès des Prosthodontistes à Las Vegas**

Trois dentistes canadiens participeront au troisième Congrès international des Prosthodontistes à Las Vegas du 26 au 28 octobre prochain.

Le docteur G. A. Zarb, de Toronto, discutera de "L'effet des prothèses amovibles sur les tissus buccaux - dentiers partiels amovibles".

Le docteur Jacques Fiset, de Montréal, exposera "Divers concepts relatifs au traitement utilisé pour les dentitions terminales".

Le docteur Donald Kepron, aussi de Montréal, traitera des "Considérations sur les mouvements mandibulaires en prothèse dentaire".

Le congrès qui sera tenu à l'Hôtel Hilton de Las Vegas, est organisé sous les auspices de la Fédération of Prosthodontic Organizations dont fait partie la Canadian Academy of Prosthodontics. La date du congrès a été choisie afin de donner suite au programme sur les prothèses, inclus dans les assises du congrès de la Fédération Dentaire Internationale, dont le congrès mondial sera tenu à Mexico, et de précéder la réunion annuelle de l'American Dental Association à San Francisco.

Les frais anticipés d'inscription ont été fixés à \$30 jusqu'au 15 septembre et à \$35 après cette date. Les membres des organismes affiliés à la Fédération of Prosthodontic Organizations ne sont pas tenus de verser des frais d'inscription.

Pour obtenir de plus amples informations, prière de communiquer avec le International Prosthodontics Congress, c/o The Julian J. Jackson Agency, 919 North Michigan Ave, Chicago, Ill 60611, USA.

### **Séminaire international d'implantologie à Paris**

Le IXème séminaire international d'implantologie se tiendra à Paris, les 26-27 et 28 novembre 1972, au Palais de la Défense.

Plus de 20 nations participeront à ces assises; aussi aura-t-on recours à la traduction simultanée en français, anglais, allemand, italien et espagnol.

Pour la première fois toutes les techniques implantaire existant dans le monde seront présentées par leurs promoteurs et confrontées face à l'implantologie aiguilles.

## **Organisations dentaires**

### **Il faut accorder un "new deal" à la population, déclare le président de l'ADO**

D'après le président sortant de l'Association dentaire de l'Ontario, les citoyens de l'Ontario devraient jouir d'une déclaration des droits de l'homme relative à la santé dentaire, qui autoriserait les techniciens dentaires compétents à fabriquer et à ajuster les dentiers, à condition que ces responsabilités s'exercent sous la surveillance d'un dentiste.

L'adoption d'une telle politique, a signalé le docteur L. J. Schiller aux délégués de l'ADO, réunis en congrès annuel le 17 mai dernier, garantirait la qualité de tous les traitements dentaires effectués dans cette province. Elle empêcherait les techniciens dentaires de traiter indépendamment avec le public.

"Le gouvernement continue de fermer les yeux, permettant ainsi à des personnes incompetentes de trafiquer leurs services à tous venants", a précisé le docteur Schiller. "En conséquence, nous lançons un appel au ministère de la Santé pour qu'il impose, sans délai, des standards sévères dans tous les domaines de la dentisterie".

Le dentiste de Windsor a aussi proposé l'organisation d'un cours d'un an pour former des techniciens dentaires compétents, "susceptibles de dispenser au public des services de prothèses appropriés, sous la surveillance des dentistes, tout en éliminant énergiquement tous les candidats incompetents".

"En laissant la situation aller à la dérive, le gouvernement faillit au devoir



de garantir au consommateur une protection aussi efficace qu'il procure aux citoyens dans le domaine des services de santé et du choix des savons, des désodorisants ou des flocons de maïs. Le public a droit à ces mesures de protection".

Le docteur Schiller a exprimé des commentaires cinglants à l'égard "des critiques qui ne perdent jamais l'occasion de déplorer l'état précaire de la santé dentaire des citoyens de l'Ontario et qui se permettent à la fois d'attaquer perfidement les personnes mêmes qui s'efforcent de trouver une solution au problème: les dentistes".

La majorité de ces reproches furent adressés au gouvernement de l'Ontario. "En qualité de professionnels engagés, animés du désir de donner le meilleur de nous-mêmes au service de cette cause, je crois que l'heure est venue d'exprimer ouvertement notre pensée et de dire: c'est assez! Le temps est venu de cesser de bousculer le dentiste et de jeter le blâme sur ceux qui le méritent, c'est-à-dire carrément sur les épaules du gouvernement".

Il réclama la promulgation d'une loi établissant un régime de soins dentaires pour les enfants. Les 900 invités applaudirent chaleureusement à ses revendications réclamant une législation immédiate ordonnant la fluoruration des eaux de consommation dans l'ensemble de la province.

Le docteur Schiller réclama aussi la mise en oeuvre d'une campagne de masse afin de renseigner le public sur la maladie dentaire. Il demanda aussi de pouvoir disposer de plus de ressources éducatives en vue de la formation d'auxiliaires dentaires.

### **L'ADO appuie le projet des services de prothèse à peu de frais**

Le Conseil des Gouverneurs de l'Association dentaire de l'Ontario, au cours d'une réunion tenue les 12 et 13 mai dernier a adopté une résolution encourageant la mise en oeuvre de services complets de prothèses, qui seraient subventionnés et offerts à peu de frais. L'Association a aussi adopté une "Déclaration de principe sur le fonctionnement des services de prothèses à peu de frais."

Les gouverneurs de l'ADO ont ajourné à la réunion de l'automne prochain, l'étude de la proposition d'une augmentation de 6.6 pour cent du barème des honoraires de l'ADO.

Après avoir constaté l'existence de sérieuses disparités entre diverses municipalités, les membres du Conseil ont aussi réclamé un rapport complet sur l'administration et les honoraires versés pour les services dentaires reçus par les bénéficiaires de l'assistance sociale.

Le docteur W. L. Heaslip, de Toronto, a été élu président de l'Association dentaire de l'Ontario, succédant ainsi

au docteur L. J. Schiller, de Windsor. Le docteur R. L. Moran, de Toronto, a été choisi président désigné.

Les autres membres de l'exécutif comprennent les docteurs M. D. Charendoff, de Toronto; N. L. Diefenbacher, de Kitchener; J. E. Durran, de Hamilton; R. K. Federchuck, d'Oakville; J. A. Guest, de London; P. R. Shunock, de Toronto; et S. P. Smith, de Thunder Bay.

Les délégués au Conseil des gouverneurs de l'ADC comprennent les docteurs D. C. Clee, de Toronto; W. C. Deacon, d'Ottawa; J. E. Durran, de Hamilton; H. N. Jolley, de Toronto; Ivan Hrabowsky, de St. Catharines; D. L. Rife, de Toronto; et L. J. Schiller, de Windsor.

## **Enseignement dentaire**

### **La profession stimule les revenus du FCED**

En dépit de difficultés d'ordre financier, le Fonds canadien pour l'enseignement dentaire a terminé l'exercice de l'année 1971 avec une augmentation de 15 pour cent de son revenu total sur l'année 1970. Ce résultat est dû principalement aux efforts des membres de la profession dentaire, des hommes d'affaires et de l'industrie.

Le revenu total du FCED à la fin de l'exercice de 1971 atteignait \$103,988 alors qu'il était de \$90,846 en 1970.

L'appel annuel adressé à la profession dentaire, encouragé par la campagne "Octobre est le mois de la FCED", a permis de recueillir des dentistes des contributions personnelles atteignant \$31,609, soit une augmentation

de 21 pour cent sur le résultat de l'année 1970. Les contributions en provenance des domaines des affaires et de l'industrie se sont accrues dans la proportion de 28 pour cent, c'est-à-dire qu'elles sont passées de \$27,970 en 1970 à \$35,917 en 1971.

### *Les bourses dépassent les \$100,000*

Lors de la tenue de sa réunion d'avril 1972, le Conseil d'administration du FCED a approuvé la remise de \$100,-150 en bourses, le plus fort montant jamais accordé à cette fin. Les bourses seront appliquées au soutien financier d'un vaste éventail de programmes conçus pour promouvoir la science et la pratique de la dentisterie. Elles seront distribuées comme suit:

- formation du personnel enseignant et subventions à la recherche (fellowships) en 1972-73: \$60,300;

- septième Congrès biennal sur l'enseignement et la recherche dentaire, du 12 au 14 juin: \$9,900;

- étude des programmes d'études spécialisées et de l'enseignement permanent dans les facultés canadiennes: \$5,000;

- cliniques de table des étudiants à l'occasion du Congrès national de l'Association dentaire canadienne: \$4,000;

- bourses accordées aux auxiliaires dentaires: \$3,000;

- Conseil de la recherche de l'Association dentaire canadienne (Comité chargé des standards concernant le matériel et les dispositifs dentaires): \$1,250;

- quatrième Congrès annuel des étudiants en chirurgie dentaire: \$4,200;

- octrois accordés sans restriction à toutes les facultés dentaires canadiennes: \$12,500.

*(Suite à la page 287)*



Au cours d'un moment de détente durant la réunion d'avril du Conseil d'administration du Fonds canadien pour l'enseignement dentaire (FCED), dans l'ordre habituel: MM. D. M. McDonald, directeur général du FCED; Louis Bernier, président sortant de l'ADC; M. E. Bower, président du FCED et C. E. Pierce, vice-président.



# VOTRE SÉCURITÉ

*Cet article est le quatrième d'une série traitant des programmes d'assurance et de placement disponibles aux membres de l'Association dentaire canadienne.*

Il est bien naturel de remettre à plus tard toute discussion relative à ce qui pourra se produire lorsque nous ne serons plus là et c'est pour cette raison que toute planification successorale est un sujet sur lequel les gens se penchent avec réticence.

Cependant, le sujet se précise lorsqu'on réalise que la planification successorale consiste à prévoir, à la suite de notre départ, les besoins réels des membres de notre famille et des êtres qui nous sont chers, pour lesquels nous avons travaillé laborieusement pendant toute une vie.

Le point de départ le plus logique consiste à faire un testament. Comme il appert que la somme des biens légués est très souvent supérieure à l'opinion qu'on s'en était faite, il arrive que des héritiers aient à faire face à des difficultés lorsque vous décédez ab intestat.

Plusieurs compagnies et agences d'assurances, plusieurs cabinets de comptables et notaires de même que les compagnies de fiducie (Trust Companies) comme le Trust Royal qui administre le régime d'épargne-retrait de l'Association dentaire canadienne, possèdent des formulaires de testament et des dépliants explicatifs, lesquels documents sont à votre disposition sur demande. Ce qui importe pour faire un testament, c'est de retenir les services d'un notaire ou de procéder selon la formule anglaise, soit devant deux (2) témoins.

Le premier geste consiste à faire l'inventaire de tous vos biens; ensuite il s'agit pour vous de concevoir la répartition desdits biens. C'est à ce stade qu'une assistance légale, financière et fiscale vous sera utile, en plus de votre choix d'un exécuteur testamentaire, soit un individu, soit un Trust.

Comme vous le savez, le Gouvernement fédéral s'est retiré du champ de la taxation sur les successions, en date du 31 décembre 1971, mais toutes les provinces, à l'exception de l'Alberta, ont indiqué leur intention d'occuper ce champ par une nouvelle législation ou par une modification aux lois existantes.

La Loi du Québec sur les Droits successoraux a été amendée pour dire que toute succession est exempte de droits successoraux jusqu'à concurrence de \$100,000. Il faut dire cependant qu'une succession dont la valeur dépasse \$100,000 est taxable pour la totalité (un projet de loi est à l'étude pour que cette franchise soit portée à \$150,000). Comme le montant d'une caisse de retraite est ajouté à la valeur d'une succession, il faut admettre qu'une personne, qui a contribué

pendant de nombreuses années à un fonds de retraite, voit la valeur de sa succession atteindre facilement les chiffres de \$100,000.

La Loi de la province de l'Ontario sur les Droits successoraux prévoit des montants différents d'exemption pour le conjoint survivant et pour les enfants mineurs de même que pour les enfants qui deviennent orphelins de père et de mère, mais la Loi de la province de Québec ne fait pas ces distinctions, sauf un montant de \$1,500 par enfant de moins de 25 ans, si la valeur de la succession est inférieure à \$100,000.

Pour votre information, et, sans préjudice, nous indiquons à titre d'exemples les droits successoraux qui sont à payer en 1972, en regard de la dévolution de vos biens.

| Succession | Droits à payer            |                                  |
|------------|---------------------------|----------------------------------|
|            | par le conjoint survivant | pour 2 enfants de plus de 18 ans |
| \$100,000  | néant                     | néant                            |
| \$125,000  | \$ 13,281                 | \$10,000                         |
| \$300,000  | \$ 41,000                 | \$26,250                         |
| \$500,000  | \$ 96,875                 | \$48,750                         |
| \$550,000  | \$111,718                 | \$55,000                         |
| \$600,000  | \$127,500                 | \$61,500                         |

Après avoir pris ces chiffres en considération, vous devez vous poser la question suivante: "Comment dois-je planifier ma succession?"

En ce qui concerne les dons, un individu peut faire des dons pour un maximum de \$2,000 par personne, sans droits successoraux, lequel montant de \$2,000 est plafonné à \$10,000 par année, sauf les dons faits dans les cinq (5) années qui précèdent le décès. En Ontario, la loi recule à quinze (15) ans pour lesdits dons.

Lorsque vous prenez une police d'assurance sur la vie pour obtenir la liquidité nécessaire à l'acquittement des droits successoraux, il faut bien noter que, en ce qui concerne l'exigence des droits successoraux, les primes doivent être payées en totalité par celui pour lequel ces droits sont dus, ou pour lequel les exemptions sont demandées.

Les compagnies de Fiducie ou les trusts, comme le Trust Royal, disposent d'employés qualifiés pour vous conseiller dans la planification de vos problèmes successoraux, sans frais pour vous. En ce qui concerne les membres de l'ADC, ils ne doivent pas hésiter à consulter les représentants du Trust Royal pour tout problème relatif au Fonds de retraite, puisque ce Trust a la responsabilité de l'administration du Fonds de l'ADC.

*Prochain article: Quel est le montant d'assurance-vie qu'un dentiste doit maintenir en vigueur?*



## Neuf dentistes obtiennent leur "Fellowship" du Collège royal

Le Collège royal des dentistes du Canada a décerné des "fellowships" à neuf dentistes pour signaler l'oeuvre qu'ils ont accomplie dans diverses spécialités dentaires. La cérémonie de la remise solennelle des diplômes eut lieu le 5 juin, durant le congrès national de l'ADC à Montréal.

Les récipiendaires comprenaient les docteurs: Guy Maranda, de Québec; G. K. Hurd, de Kitchener, Ont; J. H. Gryfe, de Weston, Ont; R. L. Moran et H. Phillips, de Toronto; E. Marks, de Vancouver Nord, CB; P. H. Trester, de Vancouver, CB; D. L. Catena, de Hartford, Conn; et G. E. Longhurst, de Los Angeles, Calif.

## L'économie

### La Corporation de services dentaires de l'Alberta assure de nouveaux groupes

Le renouvellement d'un contrat relatif aux soins dentaires prépayés et destinés aux employés des industries de la viande vendue au détail vient d'être annoncé par la Corporation des services dentaires de l'Alberta.

L'allocation maximale de \$500 n'apparaît plus dans le nouveau contrat, et l'on a ajouté une option pour les soins orthodontiques. Aux termes de cette option, les bénéficiaires reçoivent 50 pour cent des honoraires suggérés par le guide de l'Association dentaire de l'Alberta, jusqu'à concurrence de \$750 par enfant.

Deux nouveaux groupes ont été ajoutés à ceux qui bénéficient déjà de la protection prévue par la CSDA: le groupe des employés de la Général Paint Corporation du Canada et ceux des magasins IGA.

### Mesures restrictives possibles à l'égard des médecins spécialistes de l'Ontario

D'après une nouvelle récente, l'autorisation de pratique générale détenue actuellement par les médecins spécialistes pourrait bientôt être l'objet de restrictions.

Le docteur Joseph Dawson, secrétaire archiviste du Collège des médecins et chirurgiens de l'Ontario, a déclaré que le Collège est à mettre au

point un programme destiné au traitement par l'ordinateur des données relatives aux restrictions de l'autorisation.

En vertu de ce nouveau plan, le médecin spécialiste, comme le psychiatre par exemple, n'aura le droit de pratiquer que le psychiatrie. Il ne détiendra pas l'autorisation de pratiquer la médecine générale.

### L'enseignement dentaire permanent réclamé par six états

Six états américains exigent la participation à l'enseignement permanent pour le renouvellement de la licence, d'après le Leadership Bulletin de l'Association dentaire américaine. Ces six états sont: le Kansas, 30 heures tous les trois ans; le Kentucky, 20 points tous les deux ans; le Minnesota, 40 heures tous les cinq ans; le North Dakota, 20 heures tous les cinq ans; le South Dakota, 20 heures tous les cinq ans. La Pennsylvanie requiert l'assistance à une réunion scientifique ou un cours organisés par une association dentaire.

A une exception près, les états qui exigent l'enseignement permanent, pour accorder le renouvellement de l'autorisation, ont incorporé des dispositions spécifiques à cette fin dans les lois relatives à la pratique dentaire. Au Kansas toutefois, les exigences sont appliquées par le truchement des règlements du Conseil de l'état, sans l'intervention de lois spécifiques.

Des lois autorisant l'enseignement permanent ont été adoptées dans trois autres états: la Californie, le New-Hampshire et l'Oklahoma.

Quatre associations d'état, celles de l'Arizona, du Colorado, du Nevada et de Washington ont aussi adopté certaines mesures à l'égard de leurs membres. Ces états exigent de satisfaire au programme d'enseignement permanent pour demeurer membre de leur société professionnelle.

## La fluoruration

### Le projet de loi sur la fluoruration des eaux de consommation du Québec

Dans les 12 mois de l'entrée en vigueur de la Loi sur la fluoruration des eaux de consommation, tous les propriétaires d'usines de filtration fournissant des eaux de consommation au Québec devront munir leur usine d'appareils de fluoruration assurant une teneur en fluor de ces eaux de 1.2 parties par million.

Les propriétaires devront, au préalable, c'est-à-dire dans les cinq mois de l'entrée en vigueur de la loi, avoir fait procéder à une analyse des eaux afin d'en déterminer la teneur naturelle en fluor.

Seul un vote négatif de la population d'une municipalité ou d'un groupe de municipalités desservies par une usine de filtration pourra dispenser son propriétaire de fluorer ses eaux.

Tels sont les traits marquants du projet de loi sur la fluoruration des eaux de consommation que le ministre des Affaires sociales du Québec, monsieur Claude Castonguay, vient de déposer à l'Assemblée nationale.

Le projet de loi expose en détail les conditions dans lesquelles devra se tenir un scrutin, et insiste notamment sur la participation obligatoire d'au moins 50 p.c. des électeurs pour entraîner une décision défavorable à la fluoruration.

Le ministère des Affaires sociales s'engage par ailleurs à assurer son soutien technique à tous les propriétaires d'usines de filtration dans le domaine de la fluoruration en étroite collaboration avec le ministre responsable de la qualité de l'Environnement. Il versera de plus aux propriétaires d'usines de filtration une subvention équivalant à 50 p.c. du coût d'achat et d'installation d'un appareil de fluoruration.

La décision d'imposer la fluoruration des eaux de consommation fournies par les usines de filtration touchera environ 4 millions de Québécois, soit 65 p.c. de la population totale, alors qu'actuellement 12.4 p.c. seulement de la population profite des avantages de cette mesure.

Le coût d'achat et d'installation de systèmes de fluoruration pour les municipalités dotées d'une usine de filtration s'élèvera à \$600,000 au total, tandis que le coût de l'entretien signifierait une dépense d'environ \$370,000 annuellement. Le coût d'achat et d'installation pour les villes de Montréal et de Québec s'élèvera à \$200,000 et pourra faire l'objet d'une subvention de l'ordre de \$100,000 de la part du ministère des Affaires sociales.

## Distinctions honorifiques

Le docteur **Gérard Bastien**, professeur à l'Ecole dentaire d'Haïti, diplômé des Universités de Michigan et de Toronto, vient d'être nommé consul honoraire d'Haïti à Toronto. Le docteur Bastien a aussi été décoré ce printemps de la Ligue Universitaire du Bien Public, Paris. Il est le quatrième canadien à recevoir cette décoration.



### The geographic pathology of dental disease in Canadian central arctic populations

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*This study confirms that widespread dental caries, severe malocclusion and an alarming prevalence of periodontal disease pose a major public health threat in Canada's central arctic region. Particularly vulnerable are the Keewatin Eskimos who, while possessing no immunity to tooth decay must nevertheless learn to cope with imported foods as they gravitate increasingly to pin-point communities on the shores of Hudson Bay. Because two-thirds of the population are under age 16, the authors call for immediate remedial action. They advocate the introduction of mobile dental teams based at Churchill, Man, and Rankin Inlet, NWT, supplemented by a small number of Eskimo dental auxiliaries who would be permanently stationed in the settlements.*

*Cette étude confirme que les caries dentaires nombreuses, les malocclusions sévères et une tendance alarmante aux maladies périodentaires constituent une menace grave à la santé publique dans le centre des régions arctiques du Canada. Parmi les communautés les plus vulnérables mentionnons les Esquimaux Keewatin qui, ne possédant aucune immunité contre la carie dentaire, doivent néanmoins consommer des aliments importés puisqu'ils se rapprochent de plus en plus de communautés vivant sur les bords de la Baie d'Hudson. Puisque les deux-tiers de la population sont constitués de personnes âgées de moins de 16 ans, les auteurs insistent pour une action immédiate et efficace. Ils demandent l'établissement d'un service dentaire mobile qui serait stationné à Churchill, Man, et à Rankin Inlet, NWT, épaulé d'auxiliaires dentaires esquimaux qui resteraient en permanence dans les villages.*

The lands and peoples of Canada's central arctic region involved in this study were limited to that part of the Northwest Territories politically delineated as the District of Keewatin (Fig 1). This region is bounded on the south by the 60° N parallel and lies west and northwest of Hudson Bay. It stretches west from the rocky, low-lying coast of Hudson Bay, across the tundra plains of the Barren Lands. The region is north of the tree line and is characterized by "... a low-relief tundra environment over the heavily-glaciated, mainly pre-Cambrian under-burden. Its rolling topography is variegated by eskers, rocky outcrops and thousands of lakes and streams."<sup>1</sup>

Due to glacial action there is an absence of soil over large parts of the region. This feature, combined with long periods of below freezing temperatures, has made the production of cultivated food crops a negligible factor in sustenance and in the economy.<sup>2</sup> Progress in the development of local sources of domestic animal foods<sup>3, 4</sup> or the proposed "ranching" of the barren-ground caribou<sup>5</sup> are not likely to cause significant changes in the food habits of the region for some time to come. Meanwhile, for these reasons and a gradual break away from traditional customs wherein life could be sustained by the fortuitous availability of indigenous foods from the land and waters, the native people of this region have become increasingly dependent upon store bought food which "... is largely carbohydrate in form."<sup>1</sup>

The region is the traditional range of several Eskimo sub-cultural groups which are direct descendants of the Thule culture Eskimo who moved from Alaska, across North America and into Greenland during the period 800-1700 A.D. The sub-groups differ in terms of technology, traditional geographical distribution, dialect, customs and beliefs.<sup>1</sup>

In 1968 a Department of National Health and Welfare report<sup>6</sup> estimated that 10,736 Eskimos lived in the Northwest Territories and constituted 35.4 per cent of the total population of 30,304. Within the District of Keewatin today a vast majority of the Eskimo population is centered in pin-point settlements; very few remain in the hinterland,<sup>2</sup> as was the situation only a few decades ago.<sup>7</sup> Although the Eskimo is not yet able to compete equitably in modern industrial and social environments, he tends to be drawn to them for a variety of reasons.<sup>1</sup> A relatively few non-Eskimo peoples have also migrated to this developing region of Canada (Table 1).





Fig 1 Map showing communities surveyed in the District of Keewatin, NWT.

Williamson<sup>1</sup> points out that early explorer contact and subsequent development of the fur trade (c.1670) were the beginning of a process of acculturation and transition through which the Keewatin-based Eskimo has since been passing at an accelerating rate. The process became a significant one with the incursions of the wintering whalers (c.1869 onward), which marked the beginning of miscegenation and a change in the technological wants and needs of the Eskimo. These cultural changes were maintained and accelerated by fur trade activity and the establishment of permanent trading posts in the region in the early 1900s. Added impetus was given in some areas during more recent decades by the building of the DEW Line and mining developments. Government activities were minor factors until the mid 1950s when the creation of a federal Department of Northern Affairs was followed by extensive migration to the region.

As in most instances of acculturation and transition, the indigenous peoples undergo a period of social upheaval. In this instance "social problems include family and group fragmentation, widespread poverty, social disorientation and anomie."<sup>1</sup> These interesting, unusual, and sometimes unique characteristics of this land and its peoples generated this study.

Our purpose was not only to study and elucidate the nature, magnitude and distribution of dental disease in this region, but to provide data and information which might help those responsible for planning,

organizing and serving the dental health needs of the peoples. We also wanted to secure basic dental epi-

Table 1  
Community populations and distribution of Eskimo and non-Eskimo school age (6-15 years) populations, District of Keewatin, NWT

| Community           | Total population* | School age (6-15 yrs) population† |            | Total |
|---------------------|-------------------|-----------------------------------|------------|-------|
|                     |                   | Eskimo                            | Non-Eskimo |       |
| Eskimo Point        | 550               | 127                               | 3          | 130   |
| Whale Cove          | 130               | 37                                | 5          | 42    |
| Rankin Inlet        | 430               | 134                               | 11         | 145   |
| Coral Harbour       | 140               | 64                                | 5          | 69    |
| Repulse Bay         | 135               | 28                                | 2          | 30    |
| Baker Lake          | 600               | 177                               | 25         | 202   |
| Sub-total           | 1,985             | 567                               | 51         | 618   |
| Chesterfield Inlet‡ | 150               | 110                               |            | 110   |
| Total               | 2,135             | 677                               | 51         | 728   |

\*Source: Institute for Northern Studies, University of Saskatchewan, Saskatoon 1967 figures

†Source: Regional Supt. of Schools, Dept. of Indian Affairs and Northern Development, Churchill, Man. 1969 figures

‡Excluded from the study because of unfavourable weather



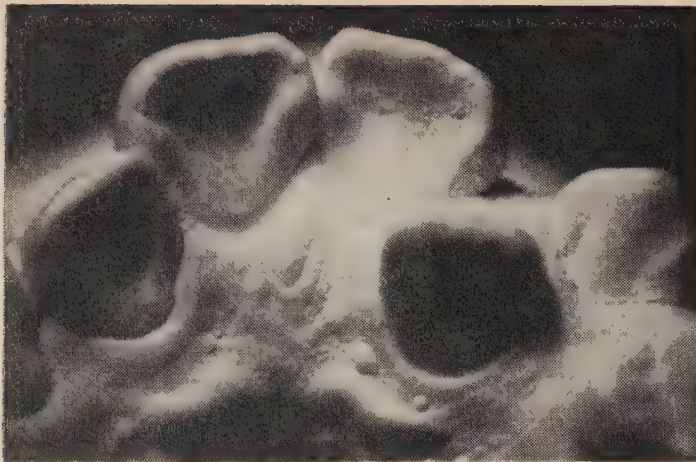


Fig 2 Bilateral displacement of trapped upper permanent lateral incisors in a Keewatin Eskimo child.

demographical data which may not be available much longer because of the economic, social and cultural changes occurring within the indigenous societies. Such data may reflect the effect of these changes on dental health.

The data used as a basis for rough inter-regional comparison were obtained from school age children in rural and urban communities in the southern geographic third of Saskatchewan. The economy of this region is basically agrarian. However, other aspects are gaining strength; for example, mineral products, especially potash, petroleum and natural gas, and manufacturing and processing.<sup>8</sup> The inhabitants of this region are mainly of mixed Eurasian heritage. Rural depopulation is a social factor common to both this region and the Keewatin area.

## Methodology

Our survey was conducted in May 1969. Detailed findings were recorded for the most prevalent and significant dental public health problems (caries, periodontal disease and malocclusion). Other interesting oral phenomena were noted. The geographic pathology method of study was chosen because of the multifactorial aspect of dental disease pathogenesis and the additional need to study the possible effects of background factors on the nature and distribution of dental disease.<sup>9</sup>

The field team consisted of three dentists, an anthropologist, and a secretary who served as receptionist and part-time recorder. Major travel was by chartered aircraft, with local ground transportation provided by the area administrators.

Figure 1 shows the communities involved in the survey. Chesterfield Inlet, intended as our last port of call, had to be excluded because of unfavourable flying weather. But, although our data do not include this community, it should also be noted that the Mission hostel-school at Chesterfield Inlet served on a regional basis for the entire central arctic region until it was closed down in 1969.

Because of limited numbers, we used a "census" rather than a random sampling of all children normally

attending school. Non-random samples of preschool and adult populations in each of the communities visited were obtained from those who attended local clinics, either for emergency dental care or in response to an appeal for examinees by the local nurses. Although recorded separately, some ages were grouped for analysis because of sample sizes.

All examinations were carried out by two experienced examiners (C.W.B.M. and T.M.C.). Dental casts were obtained by an orthodontist (R.D.H.). An anthropologist (R.G.W.), experienced in Eskimo culture, served as interpreter throughout most of the field study.

Data, recorded directly on IBM mark-sense cards, were obtained by using two levels of survey, Types A and B, recorded on the standard A and B cards.<sup>10</sup> Additional assignable codes were added for the following reasons:

1. To identify by registration number and, if necessary, to recall information for each person examined.
2. To classify the population as non-Eskimo, Eskimo-coastal or Eskimo-inland.
3. To record the prevalence of the lingually displaced (trapped) upper lateral incisor (unilateral and bilateral). In the non-Eskimo any lingual displacement in the arch was recorded as positive; in the Eskimo a positive recording was based on a lingual displacement in the arch of the upper central incisors, plus a "trapping" in this position by lower anterior teeth, generally the lower lateral incisor and lower cuspid (Fig 2).
4. To record what appeared to be "arrested decay" in the primary dentition. The criterion was clinically apparent loss of tooth structure, leaving exposed a hard, smooth surface of dentine.
5. To identify each person examined as preschool, school age or adult.

Differences in food sources and eating customs which could affect the prevalence and nature of dental disease prompted us to divide the Eskimo population into two main groups: those of the coastal technological tradition and those of the inland technological tradition. Although the latter group has also migrated to the coast in significant numbers, its members still derive most of their indigenous sustenance from terrestrial rather than marine sources.<sup>1</sup>

Most of the data were recorded by the same two recorders. The cards were checked on the spot and again after the field trip. All retrievable information not recorded on the card was obtained later by the use of the Eskimo registration number. The data were compiled and analysed by computer. Dental survey age weighting for combined ages data was done on the basis of the Canada census for 1966. Standard error was calculated on the basis of a random sample rather than finite population for this portion of the study.

A dietary survey sheet was used to record the daily intake of food for a one week period by school children in two communities, Baker Lake (inland) and Coral Harbour (coastal). The procedure was explained and supervised by the school principal in each settlement. Spring and fall surveys were planned.

An oral bacteriological (aerobic and anaerobic) survey, carried out in Coral Harbour, Repulse Bay and Baker Lake on random samples of school age children, will be reported elsewhere.

A preliminary study was also made of the eating habits of Keewatin children, from birth to seven years, to explore possible factors involved in the prevalence of primary anterior tooth decay.<sup>11</sup>



## Results and discussion

Table 1 shows the general and school age population distributions at the time of the survey. Based on school registration, 85.6 per cent of all school children in the study settlements were examined (Table 2). The average school attendance for the April-May period was 92 per cent. The sexes were about equally represented, 51.7 per cent male, 48.3 per cent female. In terms of planning a dental care program, we draw attention to the fact that (in 1971) three out of every five residents in every Keewatin settlement are under the age of 16.

With regard to the dietary survey in Baker Lake and Coral Harbour, it should be noted from Table 2 that the school age Eskimo population in Baker Lake is very largely "Eskimo-inland" (94.3 per cent), and in Coral Harbour it is entirely "Eskimo-coastal" (100 per cent).

Length of residency of the children studied is worthy of note. For example, 66 per cent of the school children in the six settlements had lived at their present settlement from birth, while an additional 19 per cent had been resident from ages one to four years. The most stable group, based on residency from birth, was the inland Eskimo (79 per cent), followed by the Eskimo-coastal (65 per cent) and non-Eskimo (15 per cent). Comparable percentage figures for one to four year "residency factors" were 20, 24 and 11 respectively. Stability of community population, based on residency from birth of the school age children, was as follows: Eskimo Point 52 per cent, Whale Cove 26 per cent, Rankin Inlet 52 per cent, Coral Harbour 82 per cent, Repulse Bay 84 per cent and Baker Lake 84 per cent. For example, only 52 per cent of the school age children in Eskimo Point had lived there since birth.

### Dental caries

Tooth decay is a major health problem among Keewatin children — 82 per cent of the six to seven year old school population and 79 per cent of the five year old group examined were afflicted. The individual attack rate (def) was correspondingly high,  $7.25 \pm 0.34$  for the seven year old school population and 7.92 for

**Distribution by community and on basis of non-Eskimo, Eskimo-coastal and Eskimo-inland school age children (6-15 years) examined, District of Keewatin, NWT**

**Table 2**

| Community     | Non-Eskimo | Eskimo-coastal | Eskimo-inland | No. examined |
|---------------|------------|----------------|---------------|--------------|
| Eskimo Point  | 1          | 76             | 30            | 107          |
| Whale Cove    | 5          | 22             | 11            | 38           |
| Rankin Inlet  | 10         | 93             | 7             | 110          |
| Coral Harbour | 4          | 62             | 0             | 66           |
| Repulse Bay   | 2          | 29             | 0             | 31           |
| Baker Lake    | 19         | 9              | 149           | 177          |
| Total         | 41         | 291            | 197           | 529          |

the five year age group. Table 3 confirms a clinical impression that about three times the number of school age Eskimo children (31 per cent) were subject to upper anterior primary tooth decay than were their Saskatchewan counterparts (11 per cent), and that both upper anterior interproximal and labial lesions contribute to this difference. The primary upper anterior labial type of lesion is much more characteristic of the Keewatin Eskimo than of the Keewatin non-Eskimo.

To ascertain possible causes of this phenomenon, we made a preliminary study of the early feeding habits of Keewatin Eskimo children from birth to age seven. The results disclosed several potential factors such as bottle feeding infants and young children with sugar water to increase their fluid intake, using a liquid vitamin preparation, prolonged bottle feeding or possibly a change to a shorter type of baby bottle nipple.<sup>11</sup>

The prevalence and nature of permanent tooth caries among the Keewatin school children are shown in Table 4. There was a significant difference ( $P < .05$ ) between the percentage of caries-free non-Eskimo (57.50 per cent) and Eskimo (27.51 per cent) school age children. The difference, in this instance, was due largely to posterior tooth decay, particularly pit and fissure lesions.

Both primary and permanent tooth decay prevalence was significantly higher ( $P < .05$ ) among coastal than among inland Eskimo school children (Tables 3 and 4). Posterior tooth decay was a major factor in

**Combined Keewatin data showing percentage distribution of severest type of caries lesion present in the primary dentition, by sub-groups, for ages six and seven. Saskatchewan data, age 7, for comparison**

**Table 3**

| Type of lesion                | Keewatin         |                       |                      |              | Saskatchewan*          |
|-------------------------------|------------------|-----------------------|----------------------|--------------|------------------------|
|                               | Non-Eskimo<br>41 | Eskimo-coastal<br>291 | Eskimo-inland<br>197 | Total<br>529 | Urban and rural<br>565 |
| None                          | 25.00            | 12.04                 | 25.86                | 18.47        | 25.30                  |
| Pit and fissure               | 6.25             | 7.22                  | 0                    | 4.45         | 12.92                  |
| Posterior interproximal       | 50.00            | 49.39                 | 34.48                | 43.94        | 48.31                  |
| Upper anterior interproximal  | 18.75            | 16.86                 | 24.23                | 19.74        | 5.66                   |
| Labial                        | 0                | 12.04                 | 13.79                | 11.46        | 5.30                   |
| Labial anterior interproximal | 0                | 2.40                  | 1.72                 | 1.91         | 2.47                   |

\*Source: C. W. B. McPhail and T. M. Curry. Epidemiology of dental disease in Saskatchewan, 1969. Unpublished data



**Distribution of percentages of severest type of dental caries lesion of permanent dentition among Keewatin sub-groups, for school age children 6-15 years. Saskatchewan data shown for rough comparison** Table 4

| Type and lesion               | Keewatin         |                       |                      | Saskatchewan* |                      |
|-------------------------------|------------------|-----------------------|----------------------|---------------|----------------------|
|                               | Non-Eskimo<br>41 | Eskimo-coastal<br>291 | Eskimo-inland<br>197 | Total<br>529  | (ages 7-17)<br>3,485 |
| None                          | 57.50            | 21.52                 | 36.54                | 29.90         | 22.72                |
| Pit and fissure               | 25.00            | 51.04                 | 45.17                | 46.85         | 46.48                |
| Posterior interproximal       | 12.50            | 19.44                 | 13.70                | 16.76         | 24.61                |
| Upper anterior interproximal  | 2.50             | 3.81                  | 1.52                 | 2.85          | 4.16                 |
| Labial                        | 0                | 1.73                  | 1.52                 | 1.52          | 0.45                 |
| Labial anterior interproximal | 2.50             | 2.43                  | 1.52                 | 2.09          | 1.54                 |

\*Source: C. W. B. McPhail and T. M. Curry. Epidemiology of dental disease in Saskatchewan, 1969. Unpublished data

these differences. Further investigation of actual diet, eating habits, oral hygiene practices and oral microbiology is necessary.

Mean permanent tooth caries attack rates in Saskatchewan follow the usual trend of decay increment as a factor of age throughout the school age period, with a notable spurt between the ages of 13 and 15 (Table 5). Keewatin data follow this incremental pattern up to age 13 and then appear to reverse. This apparent reversal may reflect the result of changing food habits in the Eskimo population. It seems almost certain that permanent tooth decay will increase among the older school age Eskimos as the process of acculturation continues.

The data dispel any lingering notion that Eskimos enjoy a greater "built-in" immunity to tooth decay than non-Eskimos when exposed to similar cariogenic foods.

There was no significant difference in dental caries prevalence between the sexes. However, the girls experienced a somewhat higher individual attack rate in permanent teeth.

#### *Periodontal disease and oral hygiene*

Periodontal disease was significantly more prevalent ( $P < .05$ ) among the Keewatin Eskimo (45.3 per

cent) than the Keewatin non-Eskimo (7.3 per cent) school age (6-15 years) children and considerably higher than in comparable Saskatchewan children (Table 6). Mild gingivitis was about five times as frequent in the Eskimo as in the non-Eskimo. Of considerable concern was the frequency of "severe" (8 per cent) and "pocket-formation" (1 per cent) types of lesions among the Eskimo children.

About twice as many of the non-Eskimo school children (92 per cent) had soft debris free mouths as did the Eskimo children (47 per cent) (Table 7). Although the Keewatin non-Eskimo had no discernible oral calculus, 6.52 per cent of the coastal Eskimo and 12.18 per cent of the inland Eskimo school population did show calculus.

Tables 6 and 7 show a surprisingly parallel pattern of prevalence and severity levels between no gingivitis and no soft debris, between mild gingivitis and soft debris, and between more severe levels of periodontal disease and calculus formation — but not in the case of soft debris and calculus.

We noted that 30 per cent of the six to seven year Keewatin age group displayed mild gingivitis, as did 20 per cent of the non-random sample of 40 children in the four year age group. The severity of periodontal disease and oral hygiene neglect emphasizes the urgent need for immediate care, as well as further

**DMFT index for Keewatin populations by age. (Saskatchewan data shown for rough comparison)** Table 5

| Keewatin |             |                 | Saskatchewan* |             |                 |
|----------|-------------|-----------------|---------------|-------------|-----------------|
| Age      | Sample size | DMF $\pm$ S.E.  | Age           | Sample size | DMF $\pm$ S.E.  |
| 5        | 52          | 0.28 $\pm$ 0.11 | 7             | 575         | 0.77 $\pm$ 0.05 |
| 6-7      | 155         | 1.47 $\pm$ 0.13 | 9             | 573         | 2.16 $\pm$ 0.07 |
| 8-9      | 157         | 2.54 $\pm$ 0.15 | 11            | 596         | 3.20 $\pm$ 0.08 |
| 10-11    | 85          | 4.07 $\pm$ 0.37 | 13            | 604         | 4.81 $\pm$ 0.12 |
| 12-13    | 92          | 5.38 $\pm$ 0.45 | 15            | 574         | 7.62 $\pm$ 0.16 |
| 14-15    | 40          | 5.30 $\pm$ 0.74 | 17            | 540         | 8.78 $\pm$ 0.18 |
| 16-17    | 14          | 2.78 $\pm$ 0.87 | (7-17)        | 3,462       | 4.30 $\pm$ 0.04 |
| (5-17)   | 595         | 3.51 $\pm$ 0.19 |               |             |                 |

\*Source: C. W. B. McPhail and T. M. Curry. Epidemiology of dental disease in Saskatchewan, 1969. Unpublished data



study to elucidate all contributing factors and planning a suitable comprehensive dental care program for this age group. It also points to a need for dentist and dental auxiliary dental care services to cope with this problem.

*Tooth and jaw relationships*

Eighty-six per cent of the Keewatin school population had normal horizontal incisal relationship. Only 1.31 per cent showed an underjet of more than -1 mm; only 4.14 per cent showed an overjet of over +4 mm; 91 per cent showed a normal vertical anterior relationship; and 75.61 per cent showed a normal anteroposterior buccal segment relationship.

About 11 per cent of the children were recorded as being in mesiocclusion, but 6 per cent were at the "1 side cusp to cusp" level. Thirteen per cent showed distocclusion, but 7 per cent were at the "1 side cusp to cusp" level. Saskatchewan data show 93.11 per cent with normal occlusion, about 2 per cent with mesiocclusion and 5 per cent with distocclusion. About 13 per cent of the Keewatin school population showed

posterior tooth crossbite, compared to 3 per cent for the Saskatchewan group.

A major malocclusion factor among the Keewatin Eskimo children was anterior tooth displacement. For example, 80 per cent of the Saskatchewan group and 75 per cent of the Keewatin non-Eskimos had 0 scores, compared to 52 and 38 per cent of the Keewatin Eskimo-coastal and Eskimo-inland groups respectively. Severity levels based on > 7 scores (type A card data) were comparable, being 4, 5, 18 and 24 per cent respectively.

A major factor in the very high prevalence and severity of anterior tooth displacement among Keewatin Eskimo school children is the peculiar phenomenon of "trapped" upper lateral incisors. Although non-Eskimos did display lingually displaced upper lateral incisors (7.31 per cent unilateral, none bilateral), the nature and severity of the problem in these people were not typical of the "trapped lateral" situation observed in the Eskimo population. Trapped lateral incisors occurred 12.71 per cent unilaterally and 5.49 per cent bilaterally among the Eskimo-coastal school aged children, and 22.84 per cent unilaterally, 10.65 per cent bilaterally among the Eskimo-inland children.

Percentage distribution of severity levels of periodontal disease among school age (6-15 years) Keewatin children by sub-groups. Saskatchewan data (combined odd ages 7-17 years) shown for comparison Table 6

| Periodontal disease level | Keewatin         |                       |                      | Total | Saskatchewan*            |
|---------------------------|------------------|-----------------------|----------------------|-------|--------------------------|
|                           | Non-Eskimo<br>41 | Eskimo-coastal<br>291 | Eskimo-inland<br>197 |       | Urban and rural<br>3,415 |
| None                      | 92.68            | 55.67                 | 53.29                | 57.65 | 69.66                    |
| Mild gingivitis           | 7.31             | 38.14                 | 32.48                | 33.64 | 29.28                    |
| Severe                    | 0                | 5.49                  | 13.19                | 7.93  | 1.05                     |
| Pocket formation          | 0                | 0.68                  | 1.01                 | 0.75  | 0                        |
| Loose teeth               | 0                | 0                     | 0                    | 0     | 0                        |

\*Source: C. W. B. McPhail and T. M. Curry. Epidemiology of dental disease in Saskatchewan, 1969. Unpublished data

Oral hygiene scores for Keewatin school population groups (6-15 years) by sub-groups. Saskatchewan data (combined odd ages 7-17 years) shown for rough comparison Table 7

|             | Keewatin         |                       |                      | Total | Saskatchewan*            |
|-------------|------------------|-----------------------|----------------------|-------|--------------------------|
|             | Non-Eskimo<br>41 | Eskimo-coastal<br>291 | Eskimo-inland<br>197 |       | Urban and rural<br>3,475 |
| Soft debris |                  |                       |                      |       |                          |
| 0           | 92.68            | 50.51                 | 42.13                | 50.66 | 67.85                    |
| <1/3        | 7.31             | 40.54                 | 45.17                | 39.69 | 30.30                    |
| 1/3-2/3     | 0                | 6.87                  | 11.67                | 8.12  | 1.55                     |
| >2/3        | 0                | 2.06                  | 1.01                 | 1.51  | 0.28                     |
| Calculus    |                  |                       |                      |       |                          |
| 0           | 100.00           | 93.47                 | 87.81                | 91.87 | 93.72                    |
| <1/3        | 0                | 5.15                  | 12.18                | 7.37  | 5.81                     |
| 1/3-2/3     | 0                | 1.37                  | 0                    | 0.75  | 0.28                     |
| >2/3        | 0                | 0                     | 0                    | 0     | 0.17                     |

\*Source: C. W. B. McPhail and T. M. Curry. Epidemiology of dental disease in Saskatchewan, 1969. Unpublished data



Percentage distribution of clinical treatment needs (restorations and extractions) of Keewatin school age (6-15 years) population. Saskatchewan data (combined odd ages 7-17 years, urban and rural) shown for rough comparison

Table 8

| % needing           | Keewatin          |           | Saskatchewan*                |           |
|---------------------|-------------------|-----------|------------------------------|-----------|
|                     | 6-15 years<br>529 |           | Odd ages 7-17 years<br>3,470 |           |
|                     | Restored          | Extracted | Restored                     | Extracted |
| 0                   | 16.06             | 43.85     | 12.65                        | 72.48     |
| Needs met           | 8.69              | 27.03     | 54.22                        | 18.81     |
| 1-3 teeth           | 43.66             | 25.14     | 26.86                        | 7.95      |
| 4-6 teeth           | 21.55             | 3.21      | 5.53                         | 0.69      |
| 7-10 teeth          | 7.93              | 0.56      | 0.66                         | 0.05      |
| All remaining teeth | 2.07              | 0.18      | 0.05                         | 0         |

\*Source: C. W. B. McPhail and T. M. Curry. Epidemiology of dental disease in Saskatchewan, 1969. Unpublished data

The Keewatin adult population examined (all Eskimo and 81 in number) showed 6.17 per cent unilateral and 6.17 per cent bilateral occurrence. Minor lingual displacement of the upper primary lateral incisor, unilateral and bilateral, for the < 4 year old Eskimo was 5 and 2 per cent respectively, and for five year old group, 3 and 9 per cent.

Lack of upper arch space, resulting in lingual displacement of the lateral incisor, particularly with the eruption of the cuspid, could be a possible rationale. But the appearance of the displaced tooth prior to eruption of the cuspid suggests the operation of a possible additional factor — an unfavourable differential growth pattern of the maxilla and mandible, and an eruption pattern whereby it appears that the lower lateral incisor first traps the upper lateral incisor lingually soon after eruption, and the lower cuspid then traps it also at a later stage of development.

The age and sub-group distribution of the "trapped lateral" phenomenon suggests that a genetic factor is involved, the effect of which has been altered by a process of miscegenation.

#### *Treatment needs and levels*

The data given in Table 8 (along with d/def and D/DMF ratios, not shown here) provide a reasonable estimate of treatment levels and unmet needs relating to restorations. Dental health care needs of the Keewatin Eskimo children were high; treatment levels were relatively low. For example, 75 per cent of the children (6-16 years of age) required restorative treatment — more than double (33 per cent) that of a comparable Saskatchewan age group (7-17 years).

Twenty-nine per cent of the Keewatin school population had unmet extraction needs (compared to the 9 per cent figure for Saskatchewan).

Within the non-random sample of 40 children aged four years and under, 40 per cent had a high level (four or more per child) of unmet restoration needs and 15 per cent of this age group had unmet extraction needs. Comparable figures for the 50 children aged five years were 75 and 36 per cent respectively.

Within the non-random sample of 81 adults (average age 33 years), 47 per cent had unmet restoration needs

and 14 per cent unmet extraction needs. None of the adults had partial or complete dentures; however, only 4-5 per cent were completely edentulous.

Our dental team offered emergency care, and this service was well received and utilized in each of the communities we visited.

#### *Other oral phenomena*

Congenital abnormalities were almost non-existent in the Keewatin school population. Only eight (1.5 per cent) of the 529 children displayed any notable variation: one supernumerary tooth, five peg shaped permanent upper lateral incisors, one "twinning" of a lower lateral incisor and one "double-shovel" shaped upper permanent cuspid. In the permanent dentition of Eskimo children Carabelli's trait was noted only very occasionally, but shovel-shaped incisors were quite common.<sup>12</sup> Occasionally a centrally located extra cusp was found on the occlusal surface of a permanent bicuspid.

One moderate case of torus palatini was noted. The only soft tissue lesion of note (other than the usual type of periodontal lesion) appeared in the labial gingiva of the lower incisors of children 10-11 years of age. The gingiva, which did not show apparent signs of inflammation, could be lifted away from the neck of the teeth and bone for a distance of 6-8 mm without signs of bleeding or pain.

The "arrested caries" phenomenon occurred only in primary teeth. From its distribution and clinical appearance, we regard this lesion as a form of hypoplasia rather than true caries.

#### *Food sources and types*

Table 9 illustrates the consumption of indigenous meat while Table 10 summarizes the major types of food consumed in two Keewatin communities. In considering these data, we would again stress that the Eskimo school children in Baker Lake were predominantly (94.3 per cent) of the inland technology sub-group, whereas those of Coral Harbour were entirely of the coastal technology sub-group.



Consumption of indigenous sources of meat in two Keewatin communities based on daily recordings for a one-week period by Eskimo school children Table 9

| Community      | Baker Lake                                                          |        | Coral Harbour |  |
|----------------|---------------------------------------------------------------------|--------|---------------|--|
|                | Spring                                                              | Spring | Fall          |  |
| Season         | Spring                                                              | Spring | Fall          |  |
| Sample size    | 59                                                                  | 59     | 58            |  |
| Age groups     | 10-16                                                               | 6-14   | 6-15          |  |
| Source of meat | Number of times meat was consumed during a one-week recorded period |        |               |  |
| Caribou        | 202                                                                 | 1      | 221           |  |
| Duck           |                                                                     | 10     | 3             |  |
| Fish*          | 40                                                                  | 1      | 15            |  |
| Goose          |                                                                     | 3      | 2             |  |
| Owl            |                                                                     | 1      |               |  |
| Polar Bear     |                                                                     | 13     | 19            |  |
| Ptarmigan      | 1                                                                   | 18     | 2             |  |
| Seal           |                                                                     | 150    | 118           |  |
| Walrus         |                                                                     | 9      | 3             |  |
| Whale          |                                                                     | 7      | 13            |  |

\*Not specified as canned or fresh

Only 10 per cent ( $9.88 \pm 2.54$ ) of the coastal group were caries-free (primary and permanent teeth) compared to 26 per cent ( $25.83 \pm 3.77$ ) of the inland children, and their DMFT score was significantly higher ( $4.19 \pm 0.31$  compared to  $2.84 \pm 0.24$ ). However, the coastal Eskimo children showed a lower prevalence of the more severe types of periodontal lesions (Table 6).

The spring diets of the two communities show a fairly similar number of servings of indigenous meat (Baker Lake 243, Coral Harbour 214) but the servings differ in kind (Table 9). Schaefer<sup>13</sup> states that all major indigenous meat sources listed in this study, when eaten according to traditional customs, have excellent nutritional value in terms of protein, protein-fat ratio, iron, calcium and other minerals, as well as vitamins, particularly vitamin C. The possible relation between a nutritional factor and the tendency toward more severe levels of periodontal disease among the inland Eskimos should therefore be investigated.

The preliminary data in Table 10 shed no light on the reasons for the significant variations in dental decay. A more detailed follow-up study, including the percentages of children in each intake level (one/week, two/week, etc.) plus a study of eating habits and water analysis may provide some indication.

Conclusions and recommendations

Posterior crossbites and lingually "trapped" upper permanent lateral incisors create a formidable malocclusion problem among the Keewatin Eskimo. Both aspects warrant further investigation. Primary and permanent tooth caries, particularly among Eskimo pre-school and school children, is a serious dental health problem in the Keewatin communities of the Canadian central arctic region. Of special concern is the high rate of primary tooth decay among the very young; and of particular interest is the high involvement of the upper anterior primary teeth.

Summary of major types of food eaten, and numbers of children who had one or more servings per week, based on daily recording by Keewatin Eskimo school children for a one-week period Table 10

| Community                  | Baker Lake                                                                 |        | Coral Harbour |  |
|----------------------------|----------------------------------------------------------------------------|--------|---------------|--|
|                            | Spring                                                                     | Spring | Fall          |  |
| Season                     | Spring                                                                     | Spring | Fall          |  |
| Sample size                | 59                                                                         | 59     | 58            |  |
| Age groups                 | 10-16                                                                      | 6-14   | 6-15          |  |
| Type of food*              | Number of children who had one or more servings during the one-week period |        |               |  |
| Milk                       | 44                                                                         | 41     | 38            |  |
| Cheese                     | 1                                                                          | 4      | 2             |  |
| Ice-cream                  | 1                                                                          | 3      | 1             |  |
| Cocoa                      | 20                                                                         | 20     | 23            |  |
| Fruit, fresh               | 21                                                                         | 8      | 3             |  |
| Fruit, canned              | 4                                                                          | 10     | 5             |  |
| Fruit juice                | 12                                                                         | 13     | 23            |  |
| Vegetables                 | 25                                                                         | 30     | 15            |  |
| Bread and cereal           | 58                                                                         | 59     | 58            |  |
| Bannock                    | 39                                                                         | 54     | 52            |  |
| Vitamin biscuits†          | 48                                                                         | 12     | 22            |  |
| Meat, indigenous           | 40                                                                         | 55     | 58            |  |
| Soups                      | 32                                                                         | 43     | 36            |  |
| Eggs                       | 5                                                                          | 9      | 9             |  |
| Fish                       | 13                                                                         | 1      | 11            |  |
| Desert, mealtime           | 43                                                                         | 46     | 45            |  |
| Tea or coffee, mealtime    | 59                                                                         | 59     | 58            |  |
| Tea or coffee, other times | 25                                                                         | 15     | 9             |  |
| Sweet drinks               | 32                                                                         | 43     | 36            |  |
| Snacks between meals       | 35                                                                         | 55     | 39            |  |

\*Does not include meats recorded, but unspecified as being "indigenous sources" or "fish"

†Provided through the school system

The extent of dental caries, malocclusion and the alarming prevalence of periodontal disease, particularly of the more severe types, among the younger age groups of the District of Keewatin, rank dental health as a top priority public health concern of this region — especially in view of the fact that over 60 per cent of the area's residents are under the age of 16 years.

There has been a remarkable departure from the traditional food sources and eating habits of the Eskimo as, for a number of reasons, they have gravitated to the Keewatin pin-point communities. This study dispels any notion that the Eskimo has any special "built-in" immunity to dental decay when subjected to food sources and habits similar to a non-Eskimo group. As Eskimos increasingly depend on imported food, they must learn to adapt to and cope with this situation. The present generally depressed socio-economic state of the Eskimo, some of the unfavourable aspects of the acculturation process, the serious educational needs and the variety of sub-groups, differing in terms of technology, traditional geographic distribution, dialect, customs and beliefs, will make this a monumental task; nevertheless, any planning, designing and administration of dental health programs in this area will require awareness of and serious attention to these facts.

The small, widely dispersed population centres, and the cost and limitations of transportation complicate planning. Nevertheless, the serious state of dental health in the Keewatin District dictates an immediate increase in the amount and regularity of emergency



care and basic treatment and the promotion and implementation of all practical preventive measures. The socio-economic state of the indigenous population warrants the introduction of tax-supported services for this purpose.

Initially, we recommend that plans be made for dental teams to work out of Churchill, Man, and Rankin Inlet, NWT. Recent dental graduates and some form of a rotating senior dental intern program from adjacent provincial dental schools may be the most likely source of dentist manpower to head these teams.

As soon as funds, space and facilities permit, auxiliary personnel with expanded duties, as outlined by the Wells Committee Report,<sup>14</sup> should be added to the team, with dental assistants and hygienists being the first members.

However, because of the persistence of their traditions, customs, habits and beliefs, the Eskimos may at first tend to resist the acceptance of both treatment and preventive services. The gap can best be bridged by offering to one or two Eskimo representatives from each community a short training program in basic dental health and hygiene geared to the new way of life. On completion of their training these individuals could work with the dental health team when it visits their community, and at other times with local medical services, school systems, home economists and native health-oriented personnel. Their training would have to be tax supported and offered at a central location such as the Institute for Northern Studies of the University of Saskatchewan Arctic Research and Training Centre at Rankin Inlet, NWT.

The skills and duties of these people could be gradually upgraded by on-the-job experience and training, and by additional education. As the communities grow and facilities increase, suitable candidates for any aspect of dental education and training, who plan a career in the central arctic region, should be encouraged and supported in their education and establishment.

Eventually it may be desirable to locate a main base of operations (administration, training and research) in Rankin Inlet in conjunction with the Arctic Research and Training Centre.

It may be necessary to rely on portable dental equipment at first, but basic equipment should be established in each community as soon as possible for ease of operation and to reduce moving costs. Locally, a temporary base of operation should be established in a school, medical services centre or community hall, in that order of preference, with the local situation dictating the actual choice.

## Summary

A study was carried out on a "census" sample of school age children and non-random samples of pre-

school and adult age groups to assess the nature and magnitude of dental disease among the Keewatin region populations of the Canadian central arctic area. This report defines some of the related background factors which affect the dental disease problem and suggests steps for its possible solution.

Doctor McPhail is professor and head of the Department of Social and Preventive Dentistry, College of Dentistry, University of Saskatchewan, Saskatoon. Doctor Curry is director of the Dental Health Division, Department of Public Health, Province of Saskatchewan, Regina. Doctor Hazelton was associate professor at the College of Dentistry, University of Saskatchewan. Doctor Paynter is dean of the College of Dentistry, University of Saskatchewan. Doctor Williamson is associate professor of anthropology and archaeology, University of Saskatchewan, and head of the Arctic Research and Training Centre, Rankin Inlet.

This study was undertaken with the assistance of the Department of National Health and Welfare, grants No. 607-7-123 and No. 605-7-565, and reported at the Second International Symposium on Circumpolar Health, Oulu, Finland, June 21-24, 1971. The assistance of the Institute for Northern Studies, University of Saskatchewan, is also gratefully acknowledged.

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Fig 1 Root canal in an upper incisor completely obliterated by gutta percha. Note the oblique post hole and lateral perforation of the root.

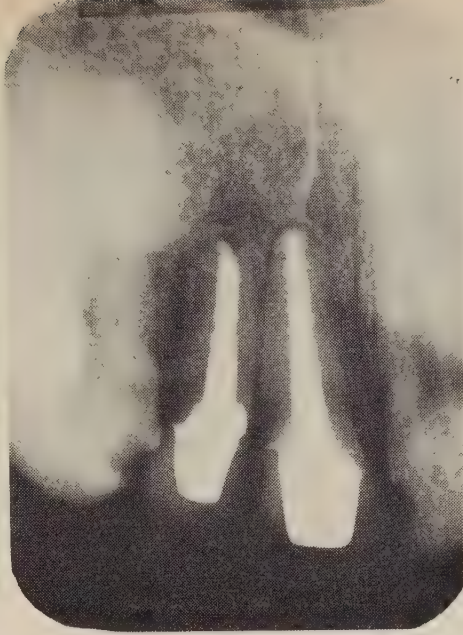


Fig 2 Two upper incisors with apical silver points and dowel posts.

# The apical amalgam root filling for anterior teeth

**J. G. Cook, BDS, DDS, LDS RCS**  
**Truro, NS**

*Root canals entirely obliterated by silver or gutta percha pose a problem in teeth that may later require a post crown. Full length silver points are difficult to remove. Lateral perforation of the root is a constant hazard when cutting a post hole in teeth where canals are obliterated by silver or gutta percha. Root resection, if subsequently required in a tooth containing a full length silver point, may destroy the apical seal. Apical fillings with amalgam obviate these difficulties.*

*Les dents dont les canaux radiculaires sont entièrement oblitérés par des pointes d'argent ou de gutta-percha constituent un problème dans l'éventualité où leur état nécessitera plus tard l'addition d'une couronne à pivot. Les pointes d'argent sont difficiles à enlever. La perforation latérale de la racine constitue un risque constant quand il devient nécessaire de tailler un puits pour fixer un pivot dans les canaux oblitérés par des pointes d'argent ou de gutta-percha. L'éventuelle résection de l'apex d'une racine contenant une pointe d'argent de longueur maximum risque de détruire le scellement apical. On prévient ces difficultés en utilisant de l'amalgame pour les obturations apicales.*

Root fillings are used extensively for restoring teeth otherwise condemned for removal. The techniques vary, as do the materials. The literature contains many examples of excellent root fillings with the canal completely obliterated by gutta percha or silver. Full length silver and gutta percha points in anterior teeth pose a problem in patients who subsequently require post crowns. Often they cannot be removed and lateral perforation is a distinct probability if the dentist attempts

Fig 3 Upper incisor with an apical gutta percha point after insertion and one year later.





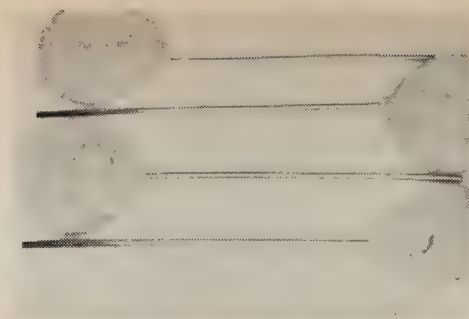


Fig 4 Stainless steel wire pluggers.



Fig 5 Hill amalgam carrier.

to ream out sufficient length to accommodate a post (Fig 1). In teeth that have already undergone root resection, successful removal of a full silver point leaves the apical end wide open, making the ensuing root filling difficult to place. The patient then has to submit to a further root filling before the dentist can proceed with a post crown.

To obviate these difficulties, only the apical portion of the canal in anterior teeth requiring a root filling should be sealed. This can be accomplished using silver or gutta percha apical points, but an apical amalgam filling is the treatment of choice.

#### Materials

**Silver** — Silver points are easy to use and can be readily matched to the size of the reamers employed. Silver has a mild germicidal action. A disadvantage of silver points is that they require a root canal sealer. Full length points cannot be reduced easily if a post is required. An additional drawback of silver points is that they can only be removed with difficulty and may be dislodged during root resection (Fig 2).

**Gutta percha** — Unlike silver, this material will also fill lateral canals. If necessary, the points can be removed using chloroform or eugenol as a solvent. Gutta percha is rarely dislodged during root resection but, like silver, it requires a root canal sealer. Condensation of the material is often prolonged, sometimes laborious and occasionally difficult (Fig 3).

#### FIG 3

**Amalgam** — Filling with amalgam is a simple and rapid technique. The material acts as its own sealer. It is inexpensive, easily condensed, well tolerated and not easily dislodged. It is eminently suitable for obliterating the apical portion of a canal. Amalgam is the only material used in retrograde root fillings.

Fig 6 Two upper incisors with apical amalgam fillings.

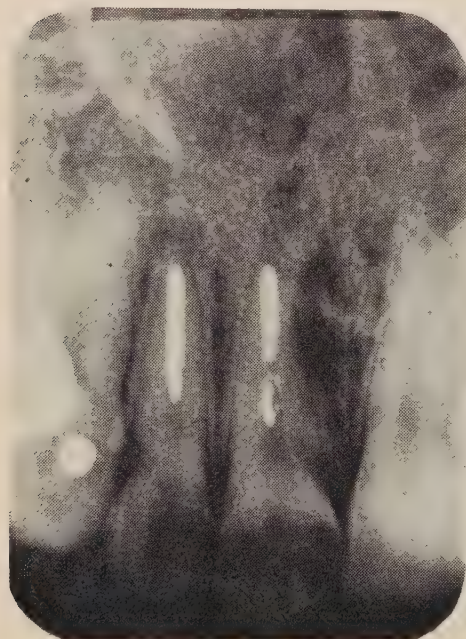


Fig 7 Apical amalgam filling in an upper lateral incisor prior to root resection.





## Methods

Diagnostic radiographs are taken to determine the exact length of the canal. The canal is then reamed or filed to the measured length until the instrument is felt to "bind" in the canal. Using one or two larger reamers, the apical region of the canal is straightened and smoothed until clean white dentine is removed. The apical region is then ready to fill.

Canals in anterior teeth are enlarged until they accommodate No. 8 (new No. 70) instruments. The initial access should be wide and in line with the canal in order to minimize the risk of instrument breakage.

Vital teeth can be prepared in one visit. Non-vital teeth are treated until at least two sterile dressings are secured at weekly intervals and the teeth are asymptomatic. The medication used may be an antiseptic, such as parachlorophenol, or an antibiotic, such as chlor-

prerequisite for ensuing root resections (Fig 7). The small lumen of the Hill carrier also makes it invaluable for placing retrograde amalgam fillings. I routinely resect the roots of teeth with a periapical radiolucent area of 2 mm or more in diameter. If the patient cannot afford the time for repeated visits or has to travel a long distance, an apical amalgam filling and an immediate root resection is the treatment of choice (Fig 8).

The coronal portion of the canal is left patent except for a small cotton plug and composite resin filling at the access point. Occasionally, trouble ensues from a lateral canal that is not obliterated by the apical root filling.

A cast gold post will alleviate this problem; but if a post is not immediately required, I cement a stainless steel wire that is sufficiently wide to fill the patent part of the canal and fit it tightly. This usually prevents any recurrence of infection and also supports the coronal

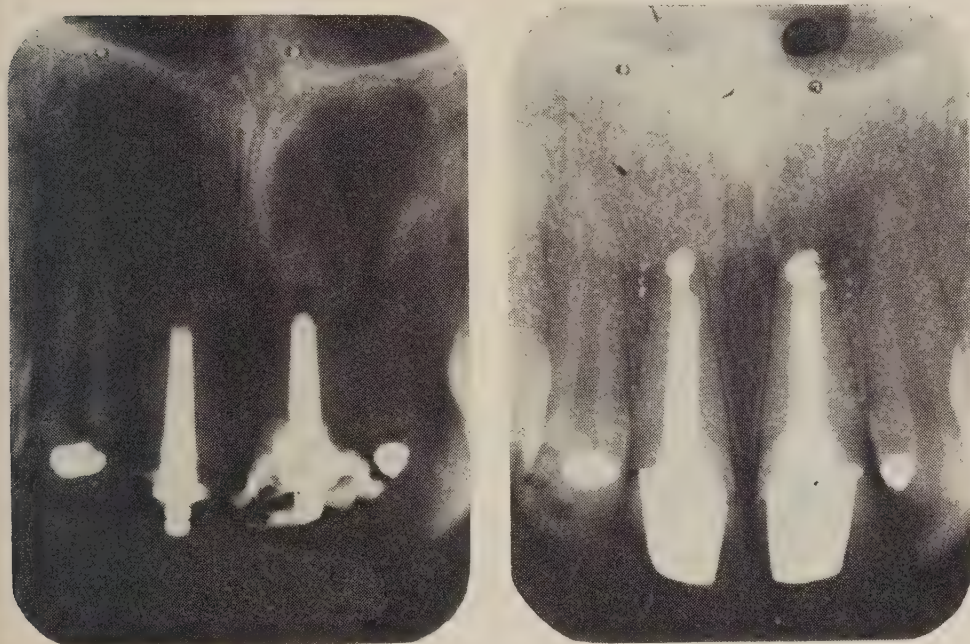


Fig 8 Two upper incisors with dowel posts and radiolucent areas in the periapical region. Retrograde amalgam fillings were inserted following root resection and curettage. Radiographs were taken prior to and one year after treatment.

amphenicol in an isopropyl glycol vehicle (Parke, Davis and Company Ltd) inserted by means of a spiral filler. During instrumentation plenty of sodium hypochlorite is used to flush out the debris in the canal.

Amalgam root fillings require four pluggers (Fig 4) made from pieces of stainless steel wire 0.6, 0.7, 0.8 and 0.9 mm in diameter and fitted with plastic handles.

Also used is a special amalgam carrier designed by T. R. Hill of the Eastman Dental Hospital, London, England (Fig 5). This instrument delivers a small amount of amalgam at a time, thus permitting good condensation and packing with the pluggers. Provided the canal is reamed to accommodate a No. 8 (new No. 70) instrument there is little chance of the amalgam causing discoloration by mercury contamination since the carrier can be inserted right into the canal. Perforation of the apex will not ensue providing that it has not been previously perforated by larger than a No. 5 (new No. 40) reamer.

Apical amalgam root fillings (Fig 6) are an ideal

portion of the tooth, obviating the need for a post should a subsequent crown be required.

## Summary

Obliteration of the whole of an anterior root canal with a silver point or gutta percha will usually hamper the later placement of a post crown. Root resection, if subsequently required, may also destroy the apical seal provided by a silver point. Apical fillings of gutta percha or silver points provide a satisfactory seal, but the apical amalgam technique has many advantages and deserves further consideration for general use in endodontics.

The author expresses appreciation to Professor Sir Robert Bradlaw, dean, and Doctor G. A. Marrant, head of the Conservation Department, Institute of Dental Surgery, Eastman Dental Hospital, London, England, where he learned the techniques described in this article. Doctor Cook's address is: 539 Prince St, Truro, NS.



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<sup>(1)</sup> Wade, A. B.,  
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Volume III, Number 8,  
P. 280-285, 17/10/61.

Dental Division,  
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Ste. Thérèse, Qué.



**Manitoba Dental Association**, at International Inn, Winnipeg. Feb 2-3, 1973. E. G. Derrett, 308 Kennedy St, Winnipeg 2, Man.

**Les Journées Dentaires du Québec**, à l'Hôtel Bonaventure, Montréal. 25-27 avril 1973. Denis LaFlamme, 4290 est rue Beaubien, Montréal 409, Qué.

**Quebec Dental Surgeons Association**, at Bonaventure Hotel, Montreal. Apr 25-27, 1973. Denis LaFlamme, 4290 Beaubien St E, Montreal 409, Que.

**Ontario Dental Association**, at Royal York Hotel, Toronto. May 13-16, 1973. Mrs. W. C. Durham, 230 St. George St, Toronto 180, Ont.

**Alberta Dental Association**, at Lethbridge. June 7-8, 1973. R. D. Kinniburgh, Centre Village Mall, 1204 - 2nd Ave A N, Lethbridge, Alta.

**Association of Canadian Faculties of Dentistry**. June 12-15, 1973. D. V. Chaytor, 5981 University Ave, Halifax, NS.

**Western Canada Dental Society**, at Winnipeg. June 28-30, 1973. J. P. Beattie, 308 Kennedy St, Winnipeg 2, Man.

#### International Meetings

**American Society of Psychosomatic Dentistry and Medicine**, at Mt. Airy Lodge, Pocono, Pennsylvania. Oct 6-8, 1972. Leo Wollman, 2802 Mermaid Ave, Brooklyn, NY 11224, USA.

**American Institute of Oral Biology**, at Spa Hotel, Palm Springs, Calif. Oct 13-17, 1972. J. A. Ducasse, PO Box 897, Glendora, Calif 91740, USA.

**American Academy of Periodontology**, at Town and Country Hotel, San Diego, Calif. Oct 25-28, 1972. L. D. Mabile, Room 924, 211 E. Chicago Ave, Chicago, Ill 60611, USA.

**International Prosthodontic Congress**, at Las Vegas Hilton Hotel, Las Vegas, Nevada. Oct 26-28, 1972. American Prosthodontic Society, 919 N Michigan Ave, Chicago, Ill 60611, USA.

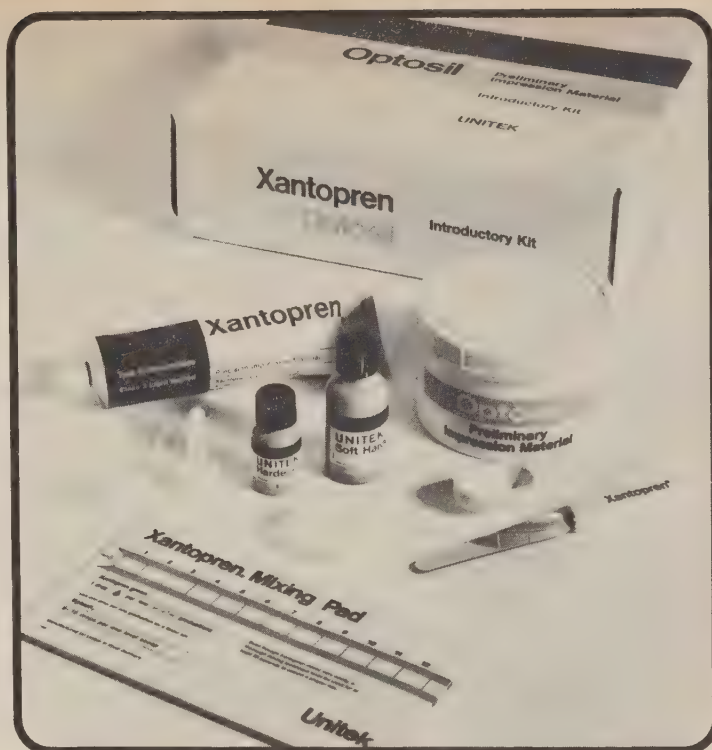
**American Academy of Gold Foil Operators**, at College of the Pacific, San Francisco, Calif. Oct 27, 1972. H. A. Brinker, 738 Highland Ave, Orlando, Florida 32803.

**American Dental Association**, at San Francisco, Calif. Oct 29-Nov 2, 1972. C. G. Watson, 211 E Chicago Ave, Chicago, Ill 60611, USA.

**Jamaica Dental Association**, at Sheraton Kingston Hotel, Jamaica, WI. Jan 28-Feb 2, 1973. M. A. Nelson, PO Box 19, Kingston 5, Jamaica, WI.

**Canadian American Medical Dental Association**, at The Lodge, Vail, Colorado. Feb 24-Mar 3, 1973. T. J. Trapasso, 816 Ashmun St, Sault Ste. Marie, Mich, USA.

**Dental Federation of Central America and Panama**, at Guatemala City, Guatemala, Central America. Feb 25-Mar 3, 1973. Jose F. Cabarrus Poitevin, 6a. Calle 1-41, Zona 1, Guatemala, Central America.



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## Book Reviews

### Fundamentals of Oral Surgery

E. R. Costich and R. P. White, Jr.  
Philadelphia, London and Toronto,  
W. B. Saunders Company, 1971.  
235 p. Illus. \$11.35

The authors, Doctors Costich and White, are very well known in the field of oral surgery. They have published some excellent papers. In this book they have tried to compress a lot of material into a very small publication.

Despite this drawback *Fundamentals of Oral Surgery* has some very worthwhile chapters not only for undergraduate students but for the general practitioner. The introductory chapter about the role of the general practitioner in oral surgery is excellent. Many patients are confused over this particular role and a few pages seem to make it very clear to the general practitioner.

The chapter on anatomy of the head and neck briefly describes anatomical considerations in oral surgery and

anaesthesia procedures, but for more detail one must refer to other books. The chapter on history taking and diagnosis is also too short and rather disappointing. It should have been omitted or expanded. On the other hand, the suggestions about planning for oral surgery in the dental office are illuminating and well worth reading.

The chapters on basic oral surgery and exodontia are descriptive and diagrammatic. One can learn a good deal from the pictures alone and the accompanying narrative text. It describes basic principles and applications of forceps for extraction of teeth and use of elevators. A chapter on replantation, transplantation and implantation of teeth deals with the technical aspects of these procedures and discusses new basic principles about transplantation of teeth. The control of bleeding is covered quite adequately, but other aspects of postoperative care are treated very superficially.

Discussion on subjects like orthodontic surgery, pharmacology and anaesthesia, diagnosis, surgery for accidental injuries and infections is very brief. These chapters will do justice if expanded to cover more material.

The final, and one of the best, chapters deals with hospital protocol and procedures. It also describes how to take a good history and perform a physical examination and how to handle a patient in the hospital.

Despite its obvious drawbacks this book has some excellent chapters. For that reason alone, it is a good addition to the library. But it needs revision before one could commend it as a textbook.

B. K. Arora

### The Dental Care of Handicapped Children

Joan Weyman. Edinburgh, Churchill Livingstone 1971. (Available from Longman Canada Ltd, Don Mills, Ont) 107 p. \$7.25

The author sets out methodically a number of handicapping conditions and related dental problems which the dental practitioner may encounter during practice.

While one may differ with the methodology of treatment, the basic philosophy of care and prevention for handicapped children cannot be over-emphasized. The book is eminently successful in this regard, and in its attempt to categorize the various physical, mental, emotional and medical problems which afflict handicapped persons. The book emphasizes the need for interprofessional relationships in order to render total care for these patients and demonstrates the importance of more extensive dental treatment. As well as its obvious appeal for the general practitioner, the text would be most useful for teaching purposes.

Norman Levine

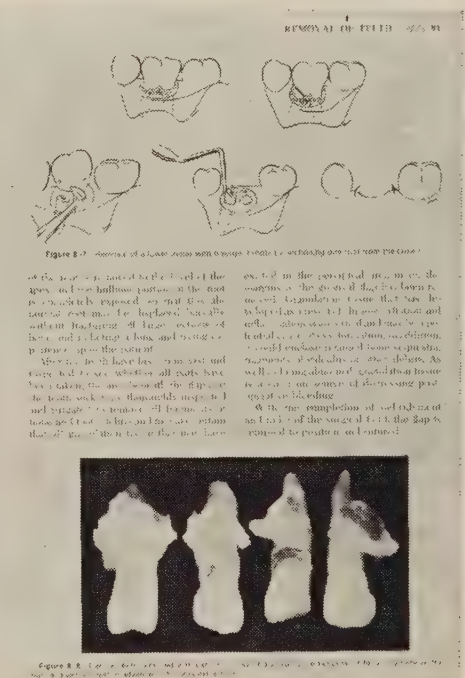
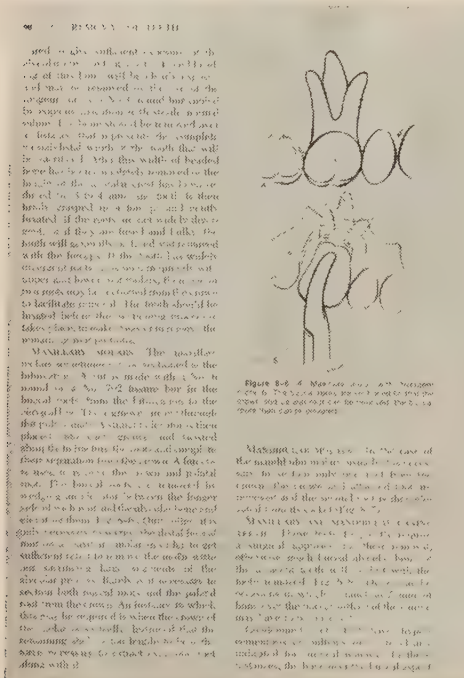
### Die Quintessenz der Amalgamanwendung (Quintessence of the use of amalgam)

P. Riethe. Tuebingen, Germany.  
(Available from Moeller-Druck, Berlin 28) 159 p. Illus. DM14.50

After giving a brief history of the use of amalgam as a filling material, the author focuses attention on the specifications of the Fédération Dentaire Internationale regarding the composition of amalgam alloy and its application in practice.

Under the heading "FDI Specification No. 1" he reminds us that silver, tin, zinc and copper are the basic constituents of the alloy. He points out that prolonged trituration results in a greater initial contraction during hard-

(Continued on page 301)





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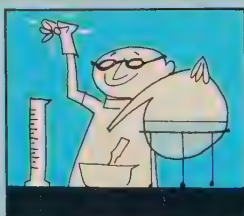
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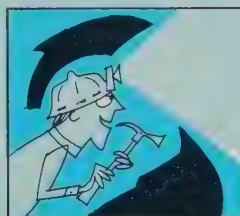
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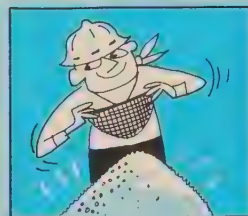
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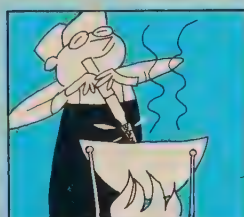
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(Continued from page 300)

ening. Dimensional changes also depend on the chemical composition of the particles. Silver-tin alloys with a 50 per cent silver content have a greater initial contraction and subsequently a small expansion. With increase in the silver content the initial contraction diminishes and the expansion increases. Therefore a higher silver content in an amalgam will result in a better restoration. The size of the alloy particles further influences the dimensional changes. Larger shavings give greater expansion and less contraction.

Sixteen per cent of all defective restorations stem from contamination with moisture. Such contamination reduces the crushing strength by 24 per cent.

To test flow qualities a cylinder of amalgam 4 mm in diameter and 8 mm high is subjected to a pressure of 105 Kg/cm<sup>2</sup> for 24 hours. During the test the temperature should be 37°±1°C. The FDI specification requires that the cylinder should not decrease in length by more than 4 per cent. The manufacturer usually specifies the alloy mercury ratio for his product and gives instructions for manipulation. Too much mercury produces a porous, corrosive and tarnished restoration. Lack of mercury results in poor crushing strength, porosity and incomplete sealing of margins.

In a section dealing with "Condensation," Rieth reminds us of the necessity for a clean and thoroughly dry cavity during the insertion of amalgam.

Under the heading "FDI Specification No. 2" he deals briefly with inspection, testing materials, and regulations for packaging, storing and shipping of alloys and mercury.

The rest of the book deals with clinical and practical applications of amalgam. The methods of cavity preparation, retention, condensation, and the instruments for placing and finishing the restoration are similar to those

practised in Canada. The book is well illustrated and although the author calls it a pocketbook for dentists, it serves well as a refresher course in amalgam restoration.

R. Wendt

### A Text on Orthodontics

*Samuel Hemley. Washington. Coiner Publications, 1971. 619 p. Illus. \$37.50*

The author of this book was chairman of the Department of Orthodontics at New York University for 35 years. It is his third book on orthodontics.

The relationship of orthodontics to every phase of dentistry is discussed but there is little subject matter on orthodontic techniques as we know them today. He says nothing about the mechanics of treatment, minor orthodontics or treatment of any kind. The emphasis is on the biological sciences correlated with clinical practice to indicate the limits of tissue tolerance. The study of orthodontics is therefore presented from a point of view that is primarily biological.

Of the 35 chapters in the book there are 10 chapters (200 pages) on forces of occlusion. Twenty-three pages are devoted to the role of the mandibular incisor. The history of the orthodontic segment of the dental profession before 1908 and from 1908 to 1928 is covered in two chapters.

The author has made an attempt to clarify the fundamental biologic factors which influence the development of normal occlusion. In presenting these, he defines principles based on facts rather than on his own authority. He gives reasons for his point of view on an issue but also stresses opposing views. In some cases the latter are identified by headings entitled "Dissident Viewpoints." Many excerpts and quotations are taken from other publi-

cations, and in each case a reference is given.

This textbook is intended primarily as a volume for undergraduate, postgraduate and graduate courses in orthodontics. However, any practitioner interested in occlusion could benefit from reading it.

If the book has any fault, it is in reference to recent research in the field of orthodontics. In other respects it covers the subject matter quite well.

M. J. Crompton

### Advanced Dental Histology

*W. A. Gaunt, J. W. Osborn and A. R. Ten Cate. Ed 2. Bristol, John Wright & Sons Ltd, 1971. (Available in Canada from The Macmillan Company of Canada Limited, Toronto) 129 p. Illus. \$5.50*

This handbook is a new edition in a series of dental practitioner handbooks published by John Wright & Sons of Bristol. The reviewer has no information on how many other handbooks in the series have gone to a second edition but it is indeed a credit to the authors, the publishers and the profession that such a publication in a basic science should occur so quickly.

The authors have preserved their method and style so that dynamic concepts of morphology and function at the cellular and tissue level have been retained. The text is easy to read, the diagrams crisp and clear, and the total impression is of a professional job well done. There is breadth, depth and conciseness in a book which should appeal to readers at all levels who have an interest in this subject. I sincerely hope that this book becomes required reading for all students, clinical specialists and practitioners.

J. R. Trott

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## Farewell to a good bunch of people

Michael Barkway, the publisher of the *Financial Times*, once described how he paid a visit to the Prime Minister of Canada shortly after he had assumed responsibility for the paper. Lester Pearson was even newer at his job than was Mr. Barkway as a publisher. But he had formed a cabinet and he was running the government. As Mr. Barkway got up to leave, the Prime Minister asked how his paper was coming along. "I think it's improving. The trouble is to find the people," Barkway replied. Putting an arm around the publisher, Mr. Pearson said: "I know, Michael, isn't that always the trouble—people?"

"People trouble" is not confined to prime ministers or members of the Fourth Estate. When you get down to it, every enterprise—from a government down to the local dairy delivering milk—is just a bunch of people. The responsibility of the man at the top, about which we hear so much, is to find a good bunch of people to run the enterprise.

Banks and stores recognize it when they boast of their friendly tellers and sales clerks. Investment analysts recognize it in another way when they stress "quality of management" as one of the vital factors in assessing a company. In the final resort all you have got behind any enterprise is a bunch of people.

All this applies very clearly to our Journal. To produce such a publication is a challenging task and the effort expended to make the end product is necessarily a collective one. It takes a variety of technical skills to get the Journal printed and distributed. But its value depends on the bunch of people who put each issue together.

Some are known by their names on our masthead: Paul Simard, our capable associate editor in Quebec City; Diane Charter, who writes special features for the Journal; Audrey Cowling, in charge of circulation; John Robinson, our advertising manager; and Alan McPhee, who designs and guides each issue from its formative beginning in the editorial office to the printer's press and on to the readers. Besides these there are others who labour with equal devotion even though their names do not appear in print: Enid Bazlik, the editor's trusted right arm, who controls the

publication's nerve centre and regulates the orderly flow of material to and from the printer, engraver, Quebec City and the editorial office; Mary Maxwell, our competent manuscript editor who deftly excises excess adipose and loose areolar tissue from many an author's literary masterpiece, trimming it down to the essential skeletal framework; Stephen Bitten and Lloyd Bowen of the Bureau of Public Information, who signal developments in the public domain that should be reported to readers; and Lindsey Provan, whose nimble fingers turn out countless pages of typescript.

Without the competent and conscientious work of such trusted colleagues, the professional touch would be missing. They have earned and deserve just recognition for work well done. They enable me to step out of active service with a sense of satisfaction and with no misgivings, knowing that the Association's Journal rests in capable hands.

In departing, I would also record my sincere gratitude in having had the privilege of serving the profession for the past 12 years. During this period, when dentistry advanced on every front, I was able to witness numerous important developments at close range. I was able to participate in many of them and have been privileged to contribute to some. For that I am grateful.

I now lay down my editorial charge. But I shall always follow the fortunes of the Canadian Dental Association with profound interest and if, at any time in the future, I can be found of service in a private capacity I shall not fail.—F.H.C.

The moving Finger writes; and, having writ,  
Moves on: nor all your Piety nor Wit,  
Shall lure it back to cancel half a line,  
Nor all your Tears wash out a Word of it.

*The Rubaiyat of Omar Khayyam*



# Doctor Compton resigns

They say bad news travels fast. If this is true then many readers may already be aware of Frank Compton's resignation as editor of the *Journal of the Canadian Dental Association* and director of communications for the CDA.

Doctor Compton's decision to leave the Association staff and return to university this fall will most certainly be viewed with regret by members from coast to coast. He has enrolled in the University of Toronto's two year course in periodontics prior to his return to private practice.

Those who have watched the Journal mature under his capable direction over the past 12 years will realize what a loss his departure will be to the Association. During the past decade the CDA has experienced steady growth and expansion of its services in response to the growing needs of a rapidly developing dental profession in Canada. And this process of evolution has been accurately reflected in the pages of the Journal. Innovations in format and content have been introduced at various stages of the magazine's development to mirror advancements in the field of dentistry as well as in the field of journalism.

Since taking over the editorship of the Journal in October, 1960, Doctor Compton has continuously strived to produce a publication which would serve as an invaluable tool to the Canadian dentist. The objectives he set for himself are perhaps best summed up in an editorial in the January, 1970, Journal introducing the first issue of a completely redesigned publication. He stated:

"The changes reflected in this issue are designed to make it easier to read and more attractive to the busy dentist. The Journal will continue to bring him news about important developments affecting health care. It will seek out significant events, trends and personalities affecting dentistry and report on them. The reporting will be accurate, concise and responsible. A real attempt will be made to give all sides of significant issues.

"The Journal will also report on controversial, timely news, events and people. In doing so it may have to chronicle the good and the bad in dentistry; but it will always endeavour to be objective and fair.

"Its columns will try to serve the profession by giving readers up-to-date information on, and insight into, the world in which they live and practise. We shall 'tell it like it is'."

These, then, were his personal objectives as an editor. Objectives which he continuously strived to fulfil with unflagging effort and enthusiasm. There can be no question that he succeeded in this task.

The Association recognizes that a man of Doctor Compton's diverse talents is a rare commodity. He received his BDS degree from the University of London, England, in 1947 and his DDS from the University of Toronto in 1949. He then served as dental director for the City of Ottawa health department prior to his return to the University of Toronto where he was awarded a diploma in dental public health from the Faculty of Dentistry in 1953. Following this, he was appointed director of dental services for the City of Toronto's Department of Public Health. At the same time he served as a special lecturer in dental public health at the University of Toronto's Faculty of Dentistry. Since 1960 his talents have been devoted to the demanding field of professional journalism. In 1967 he was elected president of the American Association of Dental Editors. A year later he was honoured by the William J. Gies Foundation for the Advancement of Dentistry with the presentation of the William J. Gies Editorial Award in recognition of an editorial entitled "In Search of Understanding" which was published in the February, 1968, issue of the Journal.

Doctor Compton's already formidable load of responsibilities as editor of the Journal increased sharply in 1971 when the Association's communications activities were expanded to take over various services previously performed by outside agencies. As director of communications, he was responsible for directing the efforts of a number of new staff appointees which included a public information officer, a news editor, a production manager, an advertising manager and increased secretarial personnel.

A four-man search committee has been appointed to seek out a suitable replacement for Doctor Compton. Their task — finding someone with expertise in the fields of dentistry, administration and journalism, coupled with an in-depth knowledge of Association policies and activities — will not be an easy one.

To say that Doctor Compton will be "a hard act to follow" is, at best, an understatement.

It is our sincere wish that Doctor Compton, his wife Nancy, and their two children, Ian and Karen, will find much happiness and personal satisfaction in his new career.



## Adieu à une bonne équipe

Michael Barkway, l'éditeur du *Financial Times*, a raconté un jour la visite qu'il avait rendue au Premier Ministre du Canada, peu après avoir assumé la responsabilité du journal. Lester Pearson avait alors encore moins d'expérience comme premier ministre que M. Barkway comme éditeur, mais il avait formé son cabinet et il dirigeait le gouvernement. Au moment où M. Barkway se levait pour prendre congé, le Premier Ministre lui demanda comment allait le journal. "Je crois qu'il est en progrès, répondit Barkway, mais la difficulté, c'est de trouver des gens", à quoi M. Pearson, passant son bras autour des épaules de l'éditeur, répondit: "Je sais, Michael, les gens . . . c'est toujours ça, la difficulté!".

Ce n'est pas un problème réservé aux premiers ministres et aux membres de la presse. Si l'on regarde les choses en face, toute entreprise, du gouvernement à la laiterie locale, est un ensemble de gens. La responsabilité de celui qui est en haut de l'échelle, responsabilité dont nous entendons tellement parler, consiste, en fait, à former une bonne équipe pour diriger l'entreprise.

Les banques et les magasins l'admettent implicitement lorsqu'ils se vantent de l'amabilité des préposés et des vendeurs de leurs établissements. Les analystes l'admettent d'une autre façon en considérant la "qualité de la gestion" comme l'un des facteurs clé dans l'évaluation d'une entreprise. En fin de compte, toute entreprise se réduit à un groupe de gens.

Ceci s'applique clairement à notre Journal. Une publication comme la nôtre représente une gageure et l'effort qu'elle demande pour être menée à bien est, de toute nécessité, un effort collectif. Il faut toutes sortes de compétences différentes pour imprimer et distribuer une revue. Sa valeur dépend du groupe de gens qui collaborent à chaque numéro.

Vous en connaissez certains, dont le nom figure à la table des matières: Paul Simard, notre rédacteur adjoint de Québec; Diane Charter qui rédige certaines de ses rubriques; Audrey Cowling qui est responsable

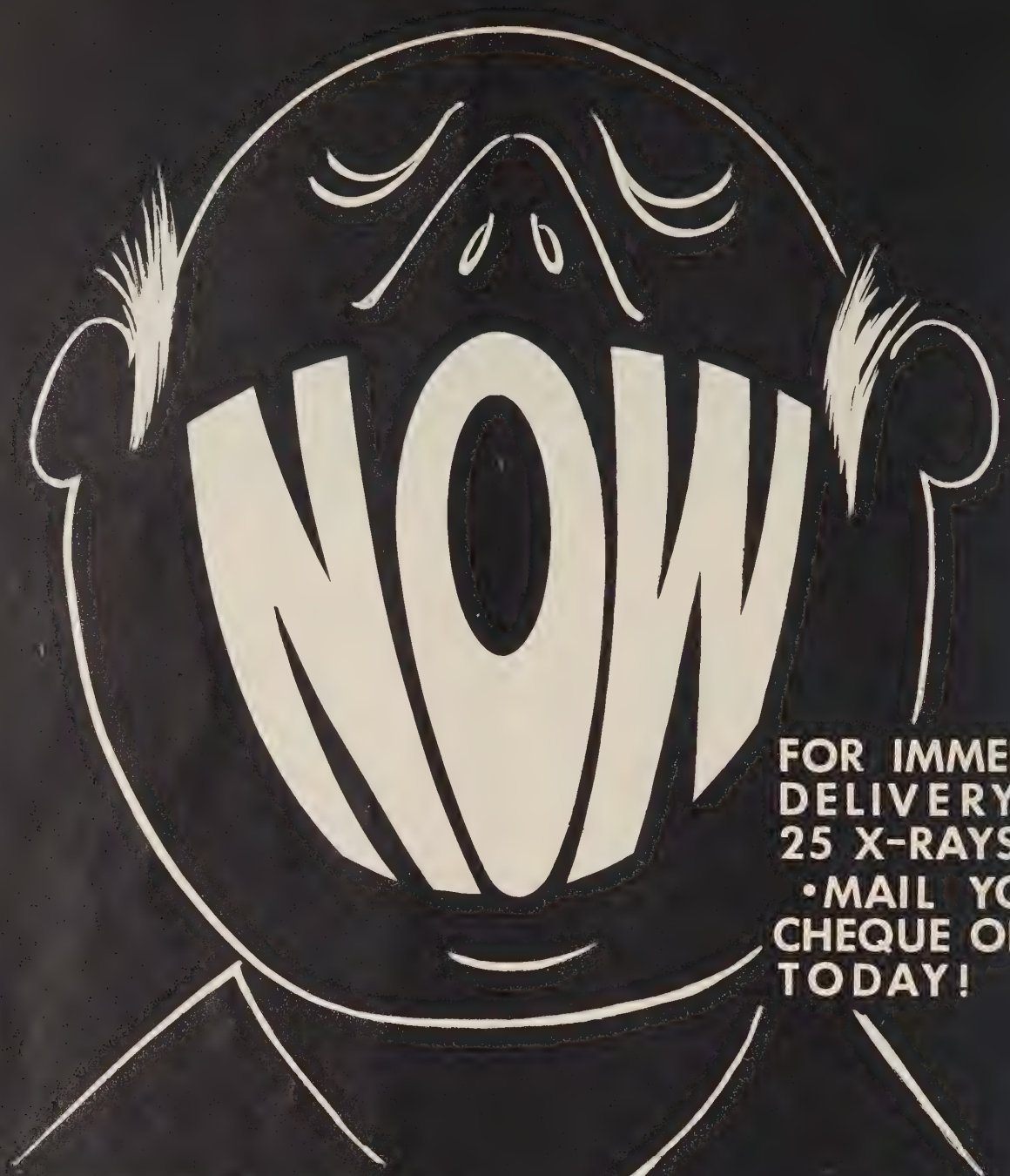
de la circulation; John Robinson, directeur de la publicité et Alan McPhee qui conçoit et guide chaque numéro, de ses débuts embryonnaires dans le bureau de rédaction à la mise sous presse chez l'imprimeur et jusque chez le lecteur. Mais il y a d'autres membres de l'équipe dont le nom n'apparaît nulle part: Enid Bazlik, le bras droit du rédacteur, qui est au centre même des activités et qui règle méthodiquement les échanges entre l'imprimeur, le graveur, Québec et le bureau de rédaction; Mary Maxwell, l'éditrice des manuscrits qui, avec dextérité, élimine les tissus aréolaires et adipeux excédentaires de nombreux chefs-d'oeuvre littéraires pour les réduire à l'essentiel; Stephen Bitten et Lloyd Bowen, du bureau d'information publique, qui signalent les développements dans le domaine public méritant d'être portés à l'attention de nos lecteurs et Lindsey Provan, dont les doigts agiles produisent page après page des textes dactylographiés.

Sans le travail compétent et consciencieux de ces collègues dévoués, nous ferions du travail d'amateur. Ils méritent notre reconnaissance et nos remerciements pour la façon dont ils s'acquittent de leur tâche. C'est grâce à eux que je peux me retirer avec un sentiment de satisfaction et sans crainte pour l'avenir, sachant que le Journal de l'Association est entre bonnes mains.

Au moment de m'en aller, je voudrais aussi vous dire ma reconnaissance sincère pour avoir eu l'honneur de servir la profession pendant 12 ans. La médecine dentaire est allée de l'avant sur tous les fronts pendant cette période et j'ai assisté à nombre de développements importants; j'ai pu participer à beaucoup d'entre eux et même contribuer à certains; j'en suis reconnaissant.

Je quitte maintenant mon poste de rédacteur mais je continuerai à suivre avec grand intérêt l'évolution de l'Association dentaire canadienne et si, à l'avenir, je peux vous être utile à titre privé, vous pouvez compter sur moi.—F.H.C.





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## Freedom

I have just had the opportunity of reading the editorial on page 229 of the July issue of the Journal and compliment you and the Canadian Dental Association for identifying and publicizing the danger that Canadians in all walks of life must persist in being sensitive to—the bending of small freedoms.

*R. F. Bonar  
Vice-President  
Colgate-Palmolive Limited  
Toronto 8, Ont*

## Marking of dentures

Identification of an individual via odontological findings can be fairly complex even when good dental records are available. It is almost impossible by present day standards to identify an edentulous individual from the remaining hard and soft tissues of the oral cavity (bone, rugae, gingiva). For this and other reasons, a state law was recently adopted in Sweden which imposes on all National Dental Health Laboratories the duty of marking dentures. Prosthetic departments in all dental schools there have adopted the same measure. Armed forces personnel already have identification marks on their dentures as do those confined to penitentiaries, geriatric units and mental institutions.

The Faculty of Dentistry of McGill University has now begun to mark all complete dentures. To my knowledge, it is the first dental school in North America to do so consistently.

The practice of marking complete dentures is excellent and serves several purposes:

1. If the denture is lost or stolen it can be returned to its owner.
2. It can serve to identify an unknown denture wearer in cases involving amnesia, homicide or suicide, or victims of fires, explosions, mass disasters such as airplane crashes or victims of wars.
3. The number of complete denture wearers is increasing. An estimated 20 million Americans wear them.

4. With the trend toward socialization in this country the demand for and the availability of complete dentures will increase.

5. The identification marks can identify the owner when natural teeth are no longer present.

6. A rapid, accurate system other than finger-printing is essential for identification of complete denture wearers, especially in this age of mass air travel.

There are several easy, practical ways of marking dentures without significantly increasing their price, if at all. Simple identification marks can include the patient's name and/or his social security number and the country of origin relating to the social security number.

To those who object to the visual display of identification marks, these are rendered invisible to the naked eye if they are placed on the tissue bearing denture surface. Moreover, this practice tends to protect rather than expose the identification marks, an important consideration in cases of fire or explosions.

The marking of dentures does not impinge upon the rights of an individual but rather serves as a preventive and social function.

*R. B. J. Dorion, BSc, DDS  
3517 Belmore Ave  
Montreal 262, Que*

## Practical fluoride application

Recent fluoride research indicates that daily self-application of fluorides in a custom fitted mouthpiece produces enamel that is most resistant to dissolution by lactic acid.<sup>1</sup> Because of this fact, the following very inexpensive method is used in my practice.

As soon as the child has all of the permanent teeth in an arch, an alginate impression is taken and a cast is poured immediately in stone. This cast is sprayed with silicone. A thin sheet of plastic held in a frame is softened over a flame and then placed on the cast. The plastic is adapted under pressure exerted by plasticine held in a full arch tray placed over the cast. An accurate transparent mouthpiece is obtained and, when cooled, the excess plastic is trimmed off. The mouthpiece is given to the child along with a fluoride gel<sup>2</sup> to be used daily for one year.

*Mark Lazare, DDS  
612 St John's Rd  
Pointe Claire 720, Que*

- 1 Horowitz, H. S. and Heifetz, S.B. A review of studies on the self administration of topical fluorides. *Canad J Public Health* 59:393, 1968.
- 2 DePaola, P. F. A review of clinical trials utilizing acidulated phosphate-fluoride topical agents. *J Amer Coll Dent* 35:22, 1968.

## Vision problems

The toll of passing years upon the dentist has always been of great concern. The transition from fireball to fence-sitter, and then finally to fireside dweller can be determined by his conversation. As soon as your young rebel begins to talk about investments and retirement funds you know that his thoughts have moved from the barricades to become geriatric.

During the summer I saw a quickly deteriorating dentist in the throes of despair as age slowly overcame his vital faculties. It was indeed a sad case, but we are rehabilitating this senior citizen. He always had a phobia about his eyesight failing, and until this summer he was chiefly noted for his ability to wear trifocal glasses. These produce quite a startling effect because as the patient lay in the chair and looked up, he could, in the right position, see three eyeballs on either side gazing at him. This certainly increased the patient's confidence as this six-eyed dentist peered at him.

This system, which I thought was in equilibrium, was thrown out by the removal of a building. Out of the window on the fifth floor, this friend of mine was accustomed to looking across the street at another office block. Occasionally, he would observe a tired businessman slap his secretary's bottom as she left the office but, generally speaking, the view was placid and dull. However, with the destruction of this particular building (to provide better transport for people instead of places where they may work and play; we now have flat spaces on which cars live and breed) there came into the view of the trifocals the local YWCA hostel. You can comprehend the difficulties this ageing dentist faced. His eyesight was no longer adequate to see right into the rooms as the young ladies during the heat of summer felt the need to divest themselves of superfluous clothing. What with a variety of failing sensory perceptions and the continued presence of other non-sensory urges, my friend was forced to bring a pair of binoculars to the office. Those of us who remember our physics lectures realize that you can't look through binoculars wearing glasses at the same time, particularly trifocals. Here we have the crux of the problem—what could this dentist say to his ophthalmologist so that he could have quadrifocals made: one for looking at people, one for looking through a pair of binoculars, one for looking at mouths, and one for looking at teeth. Fortunately, his friends got together in time and persuaded him that his office was no longer adequate, that it was time to move to the other side of the building where the scenery is less disturbing.

By the way, his office would suit me fine and I do not need glasses.

*Jean Cives*



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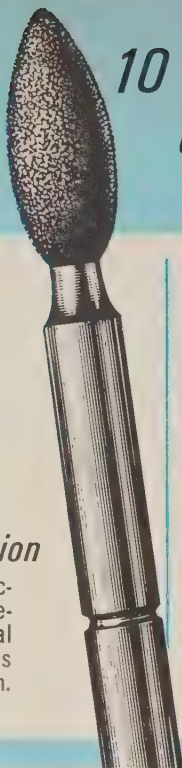
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AT-36



AT-37



AT-38

## New for bulk reduction

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WM-2F



210-10F



265-8F



769-9F

## New for finishing

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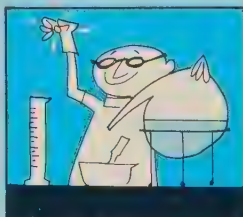
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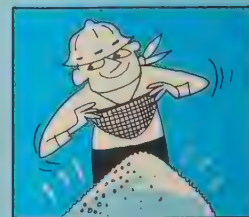
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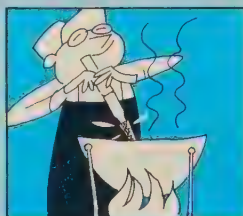
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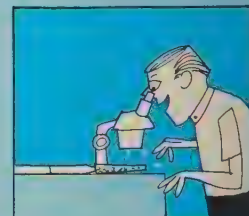
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### Cassette program of continuing dental education

The Canadian Dental Association's continuing education program, produced in collaboration with Medifacts Ltd of Ottawa, got under way last May with more than 1,000 English subscribers. The program will also be available in French as soon as there are 200 French subscribers.

An audio cassette with accompanying visual components is being produced every month and each cassette contains several scientific and technical presentations by leading Canadian dental practitioners and teachers, as well as short news items pertinent to dentists in Canada.

Many favourable comments have been received regarding the program and its scientific presentations. One such comment notes that the cassettes make an excellent and readily accessible library of concise statements on the latest dental techniques and philosophies.

Several subscribers have inquired as to the deductibility for income tax purposes of the cost of the program (\$6 per cassette). By way of response, the national tax director of Thorne, Gunn, Helliwell and Christenson, chartered accountants for both Medifacts and the Association, likens the purchase of the cassettes to the purchase of dental textbooks and subscriptions to professional magazines for the purpose of

updating professional knowledge. Such expenses are considered part of the normal cost of doing business and are therefore deductible for purposes of establishing taxable income.

### CDA Seal of Recognition

At the 1972 meeting in Montreal, the Board of Governors approved the use of an English version of a "seal of recognition" as a visual counterpart to the "statement of usefulness" which defines the area of usefulness of a therapeutic dentifrice (J Canad Dent Ass March 1972, p 94).

The Board could not agree on the French version of the seal because of a difference in opinion as to whether the proper translation of "recognized" was "reconnu," "approuvé" or "accepté." However, the Board did agree to accept for incorporation in the French seal the word selected by the Health Protection Branch of the Department of National Health and Welfare, who must also approve the seal before it can be used commercially.

The letter I received from the Health Protection Branch will be of special interest to the Association's French members. It states in part:

"The word 'reconnu' would in my opinion be a proper rendition of the meaning of the word 'recognized' as intended by your Association.

"The *Petit Robert, Dictionnaire de la Langue Française*, gives the following meanings to the word 'reconnaître': admit as true after having doubted, and hold as true after research. As stated in previous correspondence the word 'approuvé' (approved) would not be acceptable to us as it connotes unconditional approval or recognition. Although the word 'accepté' has approximately the same meaning as 'reconnu' we would prefer this last word because it would avoid the use of a number of synonyms and the ensuing possibility of confusion."

## Dialogue

### Re-orientation about dental manpower concepts

I recently heard a senior dental official reiterate that there is no shortage of dentists in most areas of his province. Similar pronouncements are made by others from time to time. Unfortunately, they are often taken at face value. What the speakers probably mean is

that there is no shortage of dentists according to the current demand expressed by the public. In many places dentists simply aren't busy, so why talk about a shortage of dental manpower.

These statements are based on a false premise, in my view. For, if dental health is important and not just a luxury susceptible to the whims of the market place, we must substitute the real need for prevention and treatment in place of fluctuating demand as a principal measure for the adequacy of manpower. This criterion must be carefully defined, of course.



Otherwise assessments based on impressions gained from the relatively low requirements of patients who now receive dental care may be equally misleading.

My proposal is simple and, while it is closely related to need, at least the wording is more in tune with what dentists are directly concerned about—dental health.

First, we have to appreciate that a certain level of dental disease or disfigurement has occurred in every person. The treatment level achieved by that person will determine his "dental health status." Dental health status is the difference, the gap, between disease attack and treatment achieved. So, let's use the dental health status of the public rather than demand for care as our criterion of manpower adequacy.

For those who see red when treatment is mentioned without accompanying emphasis on prevention, I would point out that dental health status is intimately connected with disease attack which, in turn, is a function of success in prevention. So, prevention is an integral part of this criterion and has not been overlooked.

Also not forgotten is the fact that dental health status results from the interplay of a host of social, cultural and biological factors with variations in the existing dental care delivery system. Its purpose is not to explain or remedy these things but to describe the end result of this interplay on people.

The current dental health status—the amount of unmet but required dental treatment—of the public, and not just regular patients, must be known in general terms before judgements of manpower adequacy can be expressed. Some of the required information may already be available from school surveys; the rest will have to be sought. Admittedly, this requires some effort. But, as the profession principally responsible for dental health, we should be aware of the dental health status of people in a community or know how to find it out.

Because economics, personal motivation and availability of service can distort the balance between a community's dental care demands and its manpower resources, some dentists may not be fully occupied despite an evident gap between disease attack and treatment achieved. In that event we should try to restore balance by limiting or altering these factors so that all potential manpower may be fully utilized in order to improve the public's dental health status.

To disregard dental health status and assume that we have no dentist shortage simply because some practitioners may not be fully occupied can be misleading and wrong.

*D. W. Lewis, DDS  
124 Edward St  
Toronto 101, Ont*

## Dental licensure reciprocity

Recognition of training and licensure of dentists and their auxiliaries has received widespread attention and consideration in recent years. Specific comments and recommendations are contained in the reports of the

Ad Hoc Committee on Dental Auxiliaries and the Ontario Committee on the Healing Arts. The Minister of Health of British Columbia has an intense interest in the subject. Most of the comments made by people outside the profession are in favour of reciprocity.

Provincial licensing bodies are constantly reviewing their licensing regulations and they take active steps to modify these regulations from time to time. Perhaps these modifications have not been made as quickly or as completely as some would have wished but nevertheless licensing procedures have, in most cases, been altered to meet the changing methods of education and the changing needs of society.

The recent decision to award the National Dental Examining Board certificate to all graduates of accredited Canadian dental schools has generated a good deal of interest and discussion at the provincial level. Although I am not aware of specific measures taken by each separate provincial licensing body, I believe this action will result in a general and accelerated move toward reciprocity.

With a national standard for accreditation of Canadian dental schools and with a resultant national standard for the graduates there seems to be no logical reason why there should not be national acceptance of them all for registration and licensing purposes.

Canadian graduates of previous years without the certificate of the National Dental Examining Board and who wish to change provinces should be expected to meet this national standard if they wish to be accepted in the new province of their choice. Those individuals who feel their previous credentials, by themselves, should be sufficient must remember that, as times have changed, so have their credentials.

An individual who studied chemistry or mathematics in a university 20 years ago would not receive credit for those courses today if he wished to apply them for credit to a program of study leading to a degree in a university in another province. Similarly, 20 year old dental credentials, by themselves, do not meet the modern requirements for registration and licensing.

Credentials must be updated and it is to the everlasting credit of the profession that its members constantly improve their treatment methods and remain abreast of advances in dentistry through continuing dental education. What better way is there to prove to our confrères and the public of a new province that we have indeed kept up than to write and pass the new examinations of the National Dental Examining Board? Or, for that matter, what better incentive is there to improve ourselves than having to prepare for such examinations?

For some reason "national" seems to have become a dirty word in this country. Let's do our share to return it to its rightful place by establishing national standards for dentistry and national recognition of dentists through national dental licensure reciprocity.

*D. J. Yeo, DDS, MPH  
Registrar  
College of Dental Surgeons of BC  
325-925 W Georgia St  
Vancouver 1, BC*



## The Association

### CDA, ADA executives discuss mutual problems in Toronto

Mutual problems were aired when the American Dental Association Board of Trustees and the Canadian Dental Association Executive Council met in Toronto September 11 for the fifth time in the history of the two associations. The two groups previously met in Toronto in 1960 and 1966 and in Chicago in 1963 and 1969.

Subjects considered at the meeting included:

- Effects of the US wage-price freeze on dental fees;
- Reciprocal membership on legislative and educational councils of medical and dental associations;
- The American Dental Association's new co-ordinating committee on preventive dentistry;
- Dentistry's participation in national health programs;
- Continuing education;
- Dental student organizations;
- Legal challenges to ADA membership;
- Public relations;
- Dental mechanics, dental technologists and low cost denture service;
- The proposed Canada Competition Act;
- Proposed Ontario and Quebec omnibus legislation affecting the health professions;
- Grouping of specialties;
- Expanded function dental auxiliaries; and
- Fluorides and the environment.

### Our Mistake

The July Journal, on page 236, erroneously reported that there are only three full-time dentists in the Northwest Territories. Actually, the area is now served by 18 dentists—six in the Baffin Zone, three in the Keewatin Zone, three in the Inuvik Zone and six in the Mackenzie Zone.

## Canada and the Provinces

### Toronto Star to carry CDA dental column

The *Toronto Star* will publish a regular weekly dental health column sponsored by the Canadian Dental Association beginning with the Wednesday, October 4 edition.

Called "Ask Your Dentist," the column will be written by W. J. Dunn, dean of the Faculty of Dentistry of the University of Western Ontario, in collaboration with the CDA Bureau of Public Information. Doctor Dunn, who is a former editor of the *Journal of the Canadian Dental Association and Oral Health*, will answer questions that readers may direct to him in care of the CDA.

The column will be part of the Association's expanding program to disseminate information about dentistry to the public. The *Toronto Star*, with a circulation of 520,000, is the nation's largest daily newspaper.

The CDA also supplies a separate dental health column, titled "Dental Topics," to some 200 weekly newspapers with a combined circulation of 800,000.

At a later date, the "Ask Your Dentist" column will be offered to other daily newspapers outside the *Toronto Star's* distribution area.

### Two dentists placed on group to advise on standards for Ontario mechanics

W. J. Dunn, dean of the Faculty of Dentistry at the University of Western Ontario, London, and Ivan Hrabowsky, St. Catharines, a past president of the Ontario Dental Association, have been named to a committee which will advise the Ontario government on standards for licensing of dental mechanics.

Barry Lowes, former chairman of the Metro Toronto school board, was named chairman of the committee.

Other members, named July 19 by Health Minister Richard Potter, are Charles Jewson, secretary-treasurer of the Governing Board of Dental Tech-

nicians; Patricia Johnson, a past president of the Ontario Dental Hygienists Association; Donald Hutcheson, an insurance broker from Ottawa; and Hugh Guthrie, a Guelph lawyer.

The committee will recommend standards for educational requirements and any other qualifications needed for the licensing of dental mechanics. A bill to license and allow them to deal directly with the public in making dentures was introduced in the legislature before it adjourned for the summer.

### Lay board to govern Ontario health workers

Legislative proposals to impose public control on all professional bodies that now regulate and discipline their members in the health fields were outlined to the Ontario legislature June 28.

Seven citizens, none of them connected with any of the health groups involved, will be named to a Health Disciplines Board which will have substantial authority over all the health disciplines and will be responsible for seeing that they are effectively regulated and controlled.

Under the board will be 16 colleges or regulatory agencies, including individual colleges for dentists, dental hygienists and dental technicians. Public representation is being included on their governing councils. They will also have complaints and discipline committees that will operate with standardized procedures.

The Health Disciplines Board will supervise the activities of the college councils, from whom it will require reports and information. It will review legislation respecting the provision of services by designated disciplines and conduct hearings. The board may also make regulations which, if they conflict, will override those of the colleges. It will submit an annual report to the health minister.

The board will also hear appeals from applicants refused registration by a college, and from members of the public dissatisfied with the way a college has handled their complaints. It will have the power to tell a college council to reconsider an application, permit an applicant to take examinations or additional training or register him, if it thinks the college has acted improperly.

### Alberta professions subjected to renewed legislative scrutiny

Dentistry in Alberta will again come under scrutiny when the reconstituted Legislative Committee on Professions and Occupations conducts hearings later this year. It will review existing provincial legislation, particularly with re-



spect to self-governing professions and occupations.

Questions to which the committee seeks answers include:

-Are the self-governing professions working with the object of assuring that the public is served in the best manner?

-Are the self-governing professions now paying more attention to their own self-interest?

-Do the professions exercise complete control over admission to membership? Is such control or lack of control desirable in the public interest?

-Should there be separate professional associations and regulatory agencies?

-Should the public be represented on disciplinary committees?

-Should professions be allowed to control licensure?

-Should there be an umbrella act setting basic standards for self-governing bodies?

-Who should set the educational requirements for the professions?

The committee is expected to report its findings to the legislature early next year. Resultant legislative changes, if any, are not anticipated before the spring legislative session in 1973.

## International Items

### Canadian women dentists invited to reception at FDI Mexico congress

Canadian women dentists who are attending the XVth World Dental Con-

gress of the Fédération Dentaire Internationale in Mexico City, October 22-27, will be entertained by the "Women Dentists of the Americas" on October 24.

For further information, please contact Dra. Alicia Lazo de la Vega, Chairman, Women Dentists of the Americas, XV Congreso Dental Mundial, Ezequiel Montes No. 92, 4o Piso, Mexico 4, DF, Mexico.

### New international prevention journal announced

*Prevent* is the name of a new international journal to be published by Experts Publishers Ltd of London, England. Intended to cover the whole field of prevention of disease and promotion of positive health, the first two issues will include contributions covering dental caries and the prevention of periodontal disease.

*Prevent* will be published six times a year and is available on subscription direct from the publishers at 124 Upton Lane, London E7, England.

### Canadians promote preventive dentistry in East Africa

Papers by two Canadian dentists were featured at a recent East African dental seminar which concluded July 23 in Nairobi, Kenya. The symposium was sponsored by the East African Dental Association.

Jean Turgeon, Montreal, who led the Canadian delegation, described the

University of Montreal's dental research program and presented papers on periodontal disease and the prevention and control of dental diseases in general. Doctor Turgeon is secretary of the Quebec Association of Periodontists.

Results of recent methodology research in dental health education were described by another Canadian dentist, J. M. W. Lawrence, who is dental director of the Borough of Scarborough Health Department in Metropolitan Toronto.

### Canadian to study European health systems

The Faculty of Dentistry, University of Toronto, has been awarded a \$3,600 federal grant to help finance a comparative study of dental health systems in Great Britain, the Scandinavian countries, Czechoslovakia and Russia. Recipient of the award is A. M. Hunt, associate dean, who has been granted a year's sabbatical leave of absence.

The study is expected to help identify successful methods of maintaining dental health in large population areas. Results are expected to be available in September 1973.

### Dentists invited to support "International Book Year"

1972 has been declared International Book Year by UNESCO, the United Nations Educational, Scientific and Cultural Organization. Under the slogan



Pictured at the June 3-4 annual meeting of the Canadian Academy of Prosthodontics in Montreal are (seated, from left) Donald Kepron, program chairman; W. G. Woods, CAP secretary-treasurer; Jacques Fiset, CAP president; C. O. Boucher, Columbus, Ohio, special guest; and Herbert Ptack, program co-chairman. Clinical lecturers included (standing, from left) J. S. Brudvik, Washington; G. A. Zarb, Toronto; Paul Jean, Quebec City; G. E. Smutko, Niagara Falls, NY; Françoise Michaud, Montreal; A. S. Weisgold, Philadelphia; W. R. Scott, Vancouver; L. B. Hilborn, Louisville, Ky; and R. L. Lee, Colton, Calif.



"Books for All," Canadian dentists are invited to participate in the production and use of books for cultural, economic and social development.

Throughout the developing countries, there is a great need for textbooks at all levels of instruction and an urgent demand for expanding library services, especially mobile libraries that reach school children and new literates in rural areas.

Some of the projects that will be supported by funds contributed to UNESCO during International Book Year 1972 are: mobile reference libraries in Ghana, books for refugee children in the Middle East, a book bank for students at an engineering college in India, village libraries for children in Ceylon, teaching aids for literacy programs in Jamaica, and copy books and pencils for children in Bolivia.

Dentists who borrow books from the CDA Sydney W. Bradley Memorial Library can help by enclosing a penny with each book they return to the library. All money donated to UNESCO is applied directly to projects that have been approved by the countries concerned. No money is deducted for administrative purposes.

#### **Doctor Blackerby leaves Kellogg Foundation**

A member of the W. K. Kellogg Foundation staff for 27 years, P. E. Blackerby retired from his post as vice-president for programs on August 9.

The noted dentist had served as the Foundation's president until May 1970 when he resigned due to personal health reasons and accepted the appointment as vice-president.

The W. K. Kellogg Foundation was founded in 1930 "for educational and charitable purposes." It has supported many innovative health programs around the world and helped the Canadian Dental Association launch its program of accreditation for Canadian dental schools in 1950.

#### **CDA Retirement Savings Plan**

Unit values of the Canadian Dental Association Retirement Savings Plan stood as follows on July 31, 1972:

*Fixed Income Fund* \$12.976;

*Common Stock Fund* \$29.325.

Total assets (market value) of the plan were \$13,635,629.12.

The following portfolio purchase occurred during the preceding month: 5,000 shares Imperial Oil.

For further information please write to CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto 180, Ont.

## **EDITOR REQUIRED**

The Canadian Dental Association Invites  
Applications for the Position of

### **EDITOR and DIRECTOR of COMMUNICATIONS**

The Editor/Director of Communications is a senior Association official appointed by the Executive Council. His duties include editorial responsibilities, and the supervision of advertising and production for all CDA publications and communications programs.

Applicants should have a university degree in dentistry and an acceptable combination of interest and experience in journalism, communications and public relations. An ability to communicate in French would be an added asset.

The position is full-time at CDA headquarters. It is complemented by a well qualified supporting staff. It carries a full range of employment benefits. Salary in the range of private practice incomes, and commensurate with qualifications and experience, is negotiable.

Applicants are invited to submit a complete résumé of their qualifications to:

**Dr. E. R. W. Bilkey**  
**Chairman**  
**CDA Editorial Search Committee**  
**234 St. George Street**  
**Toronto 180, Ontario.**





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## Dental Organizations

### ODA launches "Dental Health Action Fund"

The Ontario Dental Association has asked every dentist in the province to contribute \$200 to a dental health action fund. The money will be used for an educational program in support of the public health aims of the dental profession, according to ODA President W. L. Heaslip.

He said that while the ODA's immediate concern was that the government may give legal sanction to dental mechanics, "our objective is to mobilize public opinion to force government to give dental health the priority it deserves, provided by adequately trained and qualified professionals."

Doctor Heaslip said the ODA would ask the legislature to amend the proposed dental technologists act, which would set up licensing standards for dental mechanics, so as to provide for supervision by dentists.

He also said the profession would "urge the earliest possible enactment of such measures as children's dentistry, support for geriatric dentistry, province-wide fluoridation, more public health dental education and increased facilities for the education and training of dental manpower."

### Analgesia course in Montreal

M. A. Goldstein and E. A. Fellows will again be lecturers when the Quebec Analgesia Study Club presents a two day participation course in nitrous oxide-oxygen psychosedation in Montreal September 29-30. Attendance is limited and the fee is \$125 for dentists and \$25 for dental assistants.

For further information, please contact Miss C. Segall, Secretary, Quebec Analgesia Study Club, Suite 377, 6000 Côte des Neiges Rd, Montreal 249, Que, telephone (514) 342-0763.

### Montreal Fall Clinic program set

Two pre-convention seminars will precede the annual Fall Clinic of the Montreal Dental Club at the Queen Elizabeth Hotel, October 23-25.

G. L. Courtade, New York, will speak about "The Wonderful World of Pins" on October 21-22. Marcel Hébert, Montreal, and Yves Dufresne, Trois-Rivières, will conduct French language seminars in practice administration, October 22. Attendance at the pre-convention seminars qualifies for continuing education accreditation by the College of Dental Surgeons of the Province of Quebec.

The following clinical lectures have been arranged for the Fall Clinic:

Leonard Linkow, New York, "The En-

dosteal Blade-Vent: the New Dimension in Oral Implantology;"

Daniel Garliner, Coral Gables, Florida, "Myofunctional Therapy in Dental Practice;"

E. M. Hershenfield and M. Stutman, Montreal, "Contemporary Surgical Approach to Practical Periodontics;"

C. Casey and R. David, Montreal, "Prevention Can Be Fun;"

D. S. Shelby, New York, "Basic Restorative Dentistry;"

Paul Keyes, Bethesda, Maryland, "Past, Present and Future Concepts of Dento-Bacterial Plaque Diseases;"

O. P. Sykora, Halifax, "Basic Principles of Partial Denture Design; Aesthetic Considerations; Selection of Teeth;"

Jacques Fiset, Montreal, "New Concepts in Utilization of Wrought Wire in Partial Denture Construction;"

Melvyn Shevell, Montreal, "Abutment Preparation and Mouth Modification; Impressions and Work Authorization;"

R. F. Harvey, Montreal, "Problems Associated with Ageing: Geriatric Systemic Nutrient Factors;"

Frank Shamy, Montreal, "Modern Orthodontics Can Raise Your Treatment Standards;"

E. P. Millar, Montreal, "The Dental Cyst: Current Concepts in Diagnosis and Management;" and

J. W. Stamm, Montreal, "The Scientific Basis of Fluoride Therapy in Dental Practice."

The ladies' program includes a fashion show and a demonstration on the use of cosmetics.

For further information, please contact Miss M. Komarnicka, 4166 St. Catherine St W, Montreal 215, Que.

### Endodontic course in Ottawa Nov 12

The Ottawa Dental Study Club will offer a one day limited attendance course on "Effective Endodontics for Everyday Practice" with Ramon Werts, president of American Endodontic Society, at the Talisman Motor Inn, November 12.

The advance registration fee, \$70, includes a luncheon, a textbook and instruments. For further information, contact Manning Norman, Secretary, Ottawa Dental Study Club, Suite 305, 170 Metcalfe St, Ottawa K2P 1P3.

### Toronto academy sets Winter Clinic November 23

Two prominent American clinicians will participate in the 1972 Toronto Academy of Dentistry Winter Clinic, November 23, it has been announced.

J. C. Bartels of Portland, Oregon, an expert in crown and bridge prosthodontics, will discuss the latest developments in that field while N. W. Rupp of

Washington will speak on dental materials.

Attendance is recognized for accreditation by the Academy of General Dentistry under Code 440. For further information, please contact Mrs. W. C. Durham, Executive Secretary, Academy of Dentistry, 230 St. George St, Toronto 5, Ont.

## Dental Education

### Continuing education is topic for September conference

Continuing dental education is the feature topic of a national conference slated for September 25-27. The conference, sponsored by the Canadian Dental Association's Council on Education and supported by a \$16,089 grant from the Department of National Health and Welfare, will be held at the Ontario Institute for Studies in Education in downtown Toronto.

The objective of the conference is twofold: (1) to delineate the responsibilities for continuing education among existing organizations in the field of dentistry and (2) to determine effective, cooperative methods for ensuring that education in dentistry is a continuing process and that the public is served in the most effective manner.

During each day of the three day forum delegates will examine a particular aspect of continuing dental education. The theme for the first day is "Organization, Administration and Responsibility for Continuing Education in Canada—Outline of the Current Position." Four main speakers, each holding a key position in one of the various organizations which directly affect dentistry in Canada, will be on hand to discuss the role of governments, licensing bodies, associations and faculties.

On the second day, delegates will concentrate on the "Need for Continuing Education" and will hear various speakers discuss its application to the general practitioner, the specialist and the dental teacher. The pros and cons of legislation for continuing education will also be examined.

The third day's sessions will be devoted to seeking out "A Method of Delivery of Continuing Dental Education" and the topics under study will include continuing education in urban and rural centres, team teaching, multimedia modules and short courses and symposia.

The format for each day's activities features a plenary session in the morning, conducted by speakers representing various areas of the dental profession from coast to coast, followed by group discussions. In the afternoon delegates will be assigned to specific groups for in-depth study of the rami-



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fications of continuing education in dentistry.

A reception and dinner at the Park Plaza Hotel on the evening of September 25 will highlight the conference. Keynote speaker for this event is John Munro, Minister of National Health and Welfare.

G. S. Beagrie, assistant director, Division of Postgraduate Dental Education at the University of Toronto, is chairman of the conference.

### **CFDE awards 15 teacher training fellowships**

The Canadian Fund for Dental Education has awarded 1972-73 teacher training fellowships to 15 dentists, it has been announced. The awards range from \$1,000 to \$7,000 and total \$58,800.

Fellowship renewals go to:

—N. Brien, Montreal, final year prosthodontics at the University of Texas;

—T. Duquette, Montreal, second year oral medicine and diagnosis at Indiana University;

—I. M. Katz, Montreal, final year endodontics at Boston University;

—H. C. Levant, Toronto, final year prosthodontics at the University of Toronto;

—Linda E. Sharpe, Vancouver, final year adult education at the University of British Columbia;

—P. W. Stutman, Montreal, final year prosthodontics at Boston University;

—J. D. Townsend, Montreal, final year restorative dentistry at the University of Washington;

—M. Werbitt, Montreal, final year periodontics at Boston University.

Recipients of new awards are:

—C. G. Baker, Winnipeg, first year oral radiology at the University of Toronto;

—R. J. Dmytruk, Edmonton, first year orthodontics at the University of Washington;

—P. V. Goldberg, Montreal, first year restorative dentistry at the University of Washington;

—G. E. Longhurst, Toronto, certificate program in endodontics at the University of Pennsylvania;

—R. J. Markey, Montreal, first year orthodontics at the University of Washington;

—D. L. Singer, Saskatoon, certificate program in periodontics at the University of Manitoba; and

—W. D. Swanson, Edmonton, orthodontics at the University of Washington.

### **Cotter heads Saskatchewan prosthodontics department**

Dean K. J. Paynter has announced the appointment of W. A. Cotter as head of the Department of Prosthodontics in the College of Dentistry, University of Sas-

katchewan, Saskatoon. The appointment became effective last July 1.

A native of Kamsack, Doctor Cotter attended the University of Alberta, graduating in 1944. He joined the Saskatchewan faculty in 1968 as an assistant professor and organized the teaching program in prosthodontics. He was promoted to associate professor in 1970.

### **UBC teacher awarded \$1,500 CFDE fellowship**

S. L. Khanna, assistant professor in the Department of Restorative Dentistry at the University of British Columbia, Vancouver, is the recipient of a \$1,500 Canadian Fund for Dental Education fellowship award, it has been announced.

This annual CFDE award, sponsored by Warner-Lambert Canada Ltd, enables an established dental teacher to refresh and extend his knowledge in any field of dental education or education research.



S. L. Khanna

Doctor Khanna is using the award to finance four months' study of paedodontics at Harvard School of Dental Medicine in Boston. He will also spend three weeks in a program of dental rehabilitation of children at the Albert Einstein College of Medicine, New York City, before returning to duty at the University of British Columbia.

### **Educational opportunities**

#### *Continuing education*

Programs of education in addition to those listed on page A-6 of the July CDA Journal have been announced by the Faculty of Dentistry, University of Western Ontario.

A course in surgical orthodontics will be offered October 27 by B. M. Laskin, head of the Department of Oral and Maxillofacial Surgery, University of Illinois. Tuition fee \$60.

A two day course in hospital dentistry will be presented in association with the Royal College of Dental Surgeons of Ontario at the new UWO University Hospital November 2-3. Tuition fee \$60.

The dental school also offers a two day course in common oral diseases

November 17-18. Topics include developmental disturbances of the teeth, aetiology of dental caries, diseases of the dental pulp and periapical area, lesions of the oral soft tissues, and cysts of the oral cavity. Tuition fee \$80.

Fixed prosthodontics is the subject of a two day course to be given January 25-26, 1973. Tuition fee \$90 (dentists), \$10 (dental assistants).

Information regarding these programs may be obtained from the Chairman, Committee on Continuing Education, Faculty of Dentistry, University of Western Ontario, London 72, Ont.

### **Economics**

#### **Gaspé dentists receive highest average payments from Quebec Health Insurance Board**

According to the third annual report of the Quebec Health Insurance Board, dentists in the Lower St. Lawrence-Gaspé region received the highest average payments in their category — \$9,850 — from the board in 1971-72.

Second and third were practitioners in northwestern Quebec with \$7,987 and in the Saguenay-Lac-St-Jean region with \$6,300.

Lowest average payments — \$3,003 — went to Montreal area dentists. Average payments for all Quebec dentists amounted to \$4,527.

Oral surgeons in the Saguenay-Lac-St-Jean, Quebec City, Trois-Rivières and Eastern Townships combined regions received an average of \$52,850 during 1971-72. Montreal oral surgeons received \$16,000, and the average payment to all Quebec oral surgeons amounted to \$24,844.

The report points out that average payments indicate the amounts paid for insured services rendered under the Quebec Health Insurance Plan. The recipients include resident dentists, those who have recently begun to practise, retired dentists and those practising on a part-time basis. Consequently, the average payments are not necessarily representative of the remuneration paid to full-time practitioners.

#### **Canadian Medical Association backs limited licensing for physicians**

The Canadian Medical Association will request, through the Federation of Provincial Medical Licensing Authorities, that provincial medical licensing bodies institute the principle of limiting physicians' licence to practise according to their training and current abilities.

The Canadian Medical Association said some medical licensing bodies have already recognized that certain





# When the Board meets this afternoon



**INDICATIONS:** Carbocaine (brand of mepivacaine) is indicated for the production of local anesthesia for dental procedures by infiltration injection or nerve block.

**CONTRAINDICATIONS:** Carbocaine is contraindicated in patients with a known hypersensitivity to the amide type local anesthetics or to methylparaben which is added to the multiple dose vial solutions.

**WARNINGS:** RESUSCITATIVE EQUIPMENT AND DRUGS SHOULD BE IMMEDIATELY AVAILABLE WHEN ANY LOCAL ANESTHETIC IS USED.

**Usage in Pregnancy.** Safe use of Carbocaine has not been established with respect to adverse effects on fetal development. Careful consideration should be given to this fact before administration during pregnancy.

Solutions containing a vasoconstrictor, particularly epinephrine or norepinephrine, should be used with extreme caution in patients receiving antidepressants of the tripty-

line or imipramine types or MAO inhibitors because a severe prolonged hypertension may occur.

**PRECAUTIONS:** The safety and effectiveness of Carbocaine depends upon proper dosage, correct technique, adequate precautions, and readiness for emergencies.

The lowest dose that results in effective anesthesia should be used to avoid high plasma levels and serious undesirable systemic side effects. Injection of repeated doses of Carbocaine may cause significant increases in blood levels with each repeated dose due to slow accumulation of the drug or its metabolites, or due to slow metabolic degradation. Tolerance varies with the status of the patient. Debilitated, elderly patients, acutely ill patients, and children should be given reduced doses commensurate with their age and physical status.

Solutions containing a vasoconstrictor should be used cautiously in the presence of diseases which may adversely

affect the patient's cardiovascular system. In persons with known drug sensitivities or allergies Carbocaine should be used cautiously.

Serious cardiac arrhythmias may occur if preparations containing a vasoconstrictor are employed in patients during or following the administration of chloroform, halothane, cyclopropane, trichloroethylene, or other related agents.

**ADVERSE REACTIONS:** Adverse reactions result from high plasma levels due to excessive dosage, rapid absorption, inadvertent intravascular injection. Hypersensitivity, idiosyncrasy, or diminished tolerance may also be the cause of reactions. Reactions due to overdosage (high plasma levels) are systemic and involve the central nervous system and the cardiovascular system. Reactions involving the central nervous system are characterized by excitation and/or depression. Nervousness, dizziness, blurred vision, or tremors may occur followed by drowsiness, convulsions, unconsciousness and possibly respiratory arrest.





# Carbocaine<sup>\*</sup> HCl

## mepivacaine HCl

## ...will he be able to articulate?

**Prolonged numbness, with the embarrassment of slurred speech, is usually unnecessary** following most of today's high-speed restorative procedures or extractions.

**The period of facial numbness can be shortened** by using a local anesthetic solution that permits more rapid return of the tissues to normal.

**Carbocaine 3% offers rapid onset, unsurpassed depth, yet shorter duration.**

**Carbocaine 3% provides ample operating anesthesia while needed**, lasting an average of 20 minutes in the upper jaw and 40 minutes in the lower . . . so that numbness is less likely to last far beyond the procedure.

**A new dimension in patient comfort** is afforded by earlier remission of numbness.

# Carbocaine<sup>\*</sup> HCl 3%

## mepivacaine HCl

without vasoconstrictor

**The modern local anesthetic adequately effective by itself.**

When longer duration is needed, Carbocaine HCl 2% is combined with Neo-Cobefrin<sup>\*</sup> (brand of levonordefrin) 1:20,000, a vasoconstrictor which is more stable than epinephrine and less potent in raising blood pressure.

For a discussion of adverse reactions and summary of prescribing information, see opposite page and below.

0314

tions involving the cardiovascular system include depression of the myocardium, hypotension, bradycardia, and cardiac arrest. Treatment of a patient with toxic manifestations consists of maintaining an airway and supporting ventilation using oxygen, and assisted, or controlled respiration as required. Supportive therapy of the cardiovascular system consists of using vasopressors, preferably dopamine. Convulsions may be controlled by the use of diazepam. If convulsions persist, the intravenous administration of small increments of an ultra-short acting barbiturate (thiopental, thiamylal) may be used. If these are not effective, a short acting barbiturate (secobarbital, pentobarbital) may be used. Intravenous barbiturates should only be used by those familiar with their use.

Adverse reactions are characterized by cutaneous lesions of redness, or urticaria, edema, and other manifestations of allergy. The detection of sensitivity by skin testing is of doubtful value.

**DOSAGE AND ADMINISTRATION:** As with all local anesthetics the dose varies and depends upon the area to be anesthetized, vascularity of the tissues, individual tolerance and the technique of anesthesia. The lowest dose needed to provide effective anesthesia should be administered. For specific techniques and procedures refer to standard dental manuals and textbooks.

For infiltration and block injections in the upper or lower jaw the average dose of 1 cartridge will usually suffice. Each cartridge contains 1.8 ml. (36 mg. of 2% or 54 mg. of 3%). This dose may be doubled if necessary to effect anesthesia. The maximum dose should not exceed 3.6 mg. per pound of body weight. Any unused portion of a cartridge should be discarded.

**HOW SUPPLIED:** Carbocaine HCl 3% without vasoconstrictor — each ml. contains: Carbocaine HCl, 30.0 mg.; sodium chloride 3.0 mg.; and water for injection. Methylparaben 1.0

mg. is added to the solution and pH is adjusted with sodium hydroxide or hydrochloric acid in multiple dose vials. Carbocaine HCl 2% with Neo-Cobefrin 1:20,000 — each ml. contains: Carbocaine HCl 20.0 mg.; Neo-Cobefrin, 0.05 mg.; sodium chloride 4.0 mg.; acetone sodium bisulfite, not more than 2.0 mg.; and water for injection. Methylparaben 1.0 mg. and sodium lactate 1.0 mg. are added to the solution and the pH is adjusted with sodium hydroxide or hydrochloric acid in multiple dose vials. Both formulas are available in 1.8 ml. cartridges, cans of 50, to fit the Carpule Aspirator; and in 50 ml. multiple dose vials.

Sterling Drug Ltd. is the registered user of the trademarks Carbocaine and Neo-Cobefrin (\*Trade Mark Reg.)

COOK-WAITE

Cooke-Waite Laboratories  
Division of Sterling Drug Ltd.  
Aurora, Ontario



physicians should be limited in the scope of their practice in accordance with their training.

The CMA recommendation was also made in recognition of the fact that effective continuing medical education can only be maintained in limited fields.

## Public Health

### No lead hazard in fluoride dentifrice

The American Dental Association has reassured the public that fluoride dentifrices which it evaluates are both safe and effective. The association issued the statement in response to newspaper reports that certain fluoride dentifrices might contain excessive amounts of lead.

The ADA's science staff first checked on the lead content of dentifrices almost 30 years ago when lead tubes were first used. Again in 1964, the ADA investigated the lead content of a major dentifrice (Crest). The US Food and Drug Administration has also conducted recent tests on Crest dentifrice. All of these tests have found the lead level to be insignificant.

## Fluoridation

### School water fluoridation protects against caries

Fluoridating a school's drinking water, in an area without a community water supply, offers considerable protection against tooth decay, according to H. S. Horowitz of the US National Institute of Dental Research.

Doctor Horowitz has reported that a 12 year study in Elke Lake, Pennsylvania, showed an overall caries reduction of nearly 40 per cent. The school's water supply was fluoridated at four and a half times the optimum amount of fluoride recommended for community fluoridation in that geographic area. The higher fluoride concentration was used to duplicate the total fluoride intake of the school children had they consumed optimally fluoridated water both at home and at school.

Doctor Horowitz found no signs of dental fluorosis. He did observe a large decrease in the loss of first molars.

## Research

### Hormones and periodontal disease

Prostaglandins, which are hormone-like substances capable of destroying bone, may be a factor in periodontal disease,

a San Francisco scientist told delegates at an International Association of Dental Research meeting in Las Vegas, March 23-26.

J. M. Goodson of the University of California said that certain bacteria which colonized the teeth may produce prostaglandins which in turn destroy the supporting bone.

Doctor Goodson reported that experiments showed microscopic changes in bone structure after one day following application of prostaglandins. After seven days of repeated application, he said, visible changes appeared in the bone, not unlike those seen in periodontal disease.

### Encouraging research in bone induction

Denture wearers and victims of cancer and accidents could benefit eventually from the bone induction studies of two Boston university scientists. They report encouraging research that may eliminate the need to take bone from a sound place in the skeleton to repair damage elsewhere.

Usually, bone transplanted from another individual is rejected. The scientists also found that cancellous bone is regularly rejected. But when cortical bone taken from another animal of the same species is demineralized and laid upon exposed bone, it is not rejected even after 18 months. Instead, it stimulates the growth of new bone which gradually replaces the graft.

In animal experiments these scientists used the demineralized cortical bone to fill in gaps and also to build up a ridge on lower jaws as if to prepare them to hold dentures. The results were so encouraging that human trials are being designed.

The animal experiments included one incident where decalcified cortical bone proved effective even after eight months of storage.

## Awards and Appointments

A Winnipeg dentist, **W. V. Grenkow**, has succeeded **D. H. MacDougall** of Edmonton as president of the Canadian Academy of Restorative Dentistry.

**W. D. McDougall** of Victoria has been re-elected for a second term as president of the College of Dental Surgeons of British Columbia. Also chosen to hold office for a year were **J. L. Hornibrook** and **D. E. Waller**, both as vice-presidents, and **T. E. Ramage**, treasurer.

**R. N. Hicks** has been named president of the Vancouver and District Dental Society, succeeding **D. G. Marshall**.

Recently elected as president of the Victoria Dental Society is **W. D. Kirs-**

**tine. K. E. Leslie** was named vice-president.

**Marjorie Weich** of Vancouver was elected president of the British Columbia Dental Hygienists Association during the BCDH annual convention May 31 to June 3 in Vancouver.

**Hubert La Belle** of Montreal has been re-elected president of the Quebec Dental Surgeons Association. Other officers are **P.-P. Prud'homme**, Shawinigan Sud, first vice-president, and **William Klein**, Montreal, second vice-president. **Claude Chicoine** and **P.-Y. Lamarche**, both of Montreal, were named treasurer and secretary. **Rolland Vallée**, Quebec City, and **L. M. Breton**, Ville St-Laurent, are councillors. **P. J. Lacoursière**, Trois-Rivières, was re-elected QDSA speaker.

## Deaths

**Ballantyne, Herbert Laurier**. Thornhill, Ont. Royal College of Dental Surgeons of Ontario, 1917. 12-7-72. Survived by Muriel (wife) and Carman (brother).

**Clarke, Harold James**. 86. Vermilion, Alta. Royal College of Dental Surgeons of Ontario, 1914. 9-7-72. Survived by Leonora (wife); Donald W. and Robert W. (sons); Mrs. Hudson Scott and Mrs. W. Scott Hamilton (sisters); and seven grandchildren.

**Hellen, Samuel Jack**. 68. Toronto. University of Toronto, 1927. 30-6-72. Survived by Rosalie (wife); Paul (son); Morris (brother); Annie Potiker and Sarah Cornish (sisters); and Bernard and Jennifer (grandchildren).

**Hooper, Willis Mathieu**. 71. Lachute, Que. McGill University, 1923. 18-7-72. Survived by Donald (son) and Frances and Mary Lou (daughters).

**Hyndman, Alex William**. 72. Montreal. McGill University, 1924. 19-11-71.

**MacGibbon, Ray Miles**. 82. Fredericton, NB. Baltimore College of Dental Surgery, University of Maryland, 1911. 14-6-72. Survived by Grace (wife); Major Miles MacGibbon (son); and two grandchildren.

**McDowell, Walter Warnock**. 74. Willowdale, Ont. Royal College of Dental Surgeons of Ontario, 1924. 22-7-72. Survived by Helena (wife); Douglas and Donald (sons); Mrs. L. Hockley and Mrs. D. Phillips (daughters); Norman (brother); Mrs. G. Beckett, Mrs. H. Hillis and Mrs. W. Simpson (sisters); and seven grandchildren. Associate member CDA.

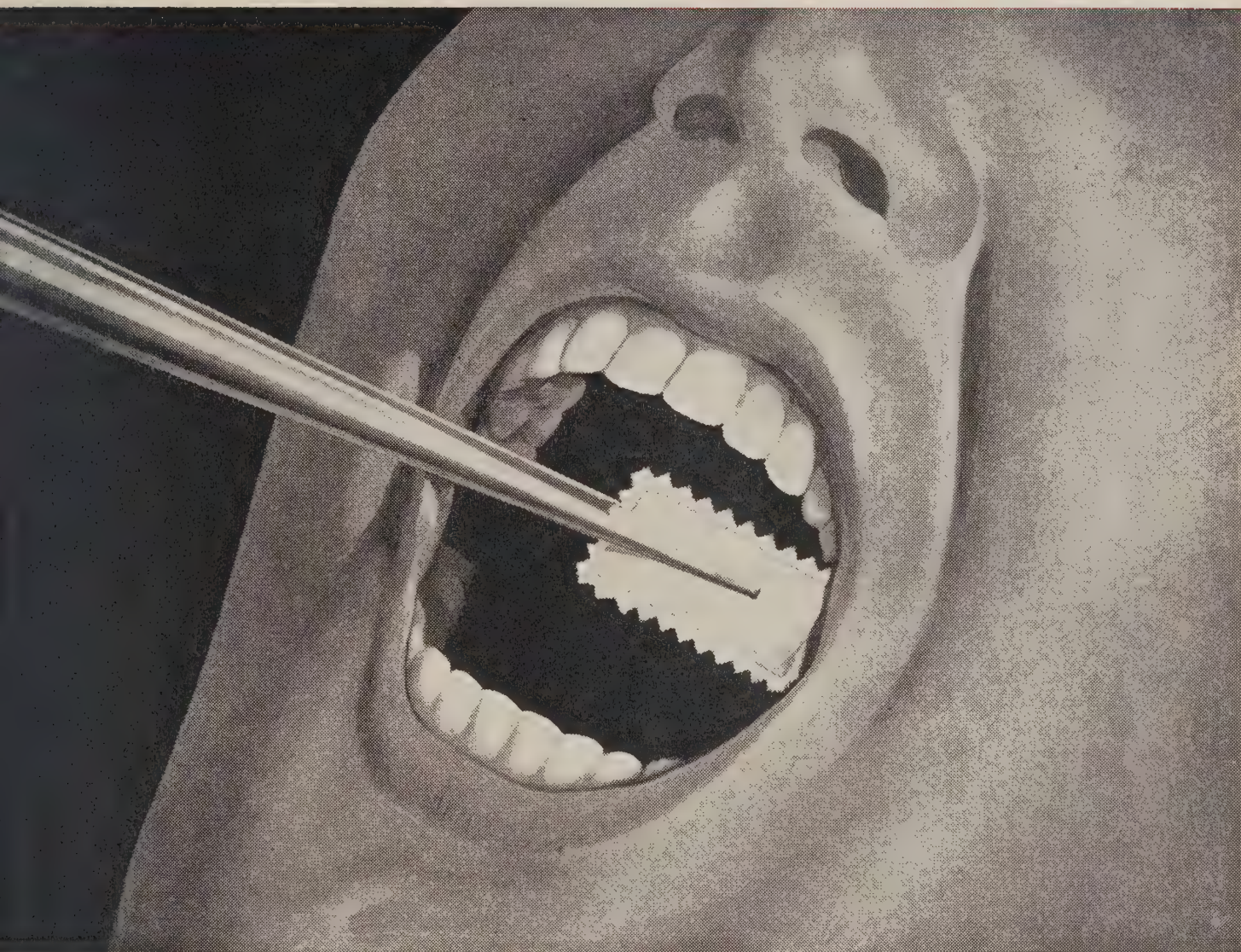
**Millette, René**. 47. Trois-Rivières, Qué. Université de Montréal, 1952. 8-7-72.

**Oliver, Stuart Laurier**. 63. Drumheller, Alta. University of Toronto, 1932. 4-7-72. Survived by Isabel (wife) and Cathy (daughter).



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## L'Association

### Deux étudiants québécois remportent des prix au Congrès national 1972

Six étudiants en chirurgie dentaire ont remporté des prix au concours des cliniques de table des étudiants organisé par l'ADC. Cette année encore, le concours fut réalisé sous les auspices du Fonds canadien pour l'enseignement dentaire grâce à une subvention spéciale offerte par la compagnie L. D. Caulk du Canada et Dentsply Itée Canada.

Les lauréats de la section "applications et techniques cliniques" furent Renaud Turcotte, de Disraéli, Québec, premier prix (\$150); John St. Germain, Vancouver, deuxième prix (\$100); et Gary Accursi, de Port Credit, Ontario, troisième prix (\$50).

Les lauréats de la section "sciences de base et recherche" furent Donald Russel, de London, Ontario, premier prix (\$150); R. A. Wiggins, de Montréal, deuxième prix (\$100); et Richard Grenkow, de Winnipeg, troisième prix (\$50).

## Le Canada

### Loi de la protection de la santé publique

Le ministre des Affaires sociales, monsieur Claude Castonguay, a déposé récemment, à l'Assemblée nationale, un nouveau projet de loi intitulé: "Loi de la protection de la santé publique".

Il s'agit, a dit monsieur Castonguay, d'une refonte de la Loi de l'hygiène publique qui, lorsque complétée par le projet de loi sur la qualité de l'environnement, partagera clairement la responsabilité propre à la protection de la personne, et celle relative à la protection de son environnement.

Ce projet de loi abroge trois lois actuelles: la Loi de l'hygiène publique, la Loi des maladies vénériennes et la

Loi relative à la tuberculose et à la mortalité infantile. Les règlements des deux premières "demeurent en vigueur dans la mesure où ils sont conciliables avec la présente loi jusqu'à ce qu'ils soient abrogés, modifiés ou remplacés par des règlements adoptés en vertu de la présente loi".

Enfin, le projet de loi recoupe la Loi des inhumations et exhumations, la Loi de l'étude de l'anatomie et la Loi concernant les directeurs de funérailles et les embaumeurs en apportant des modifications de manière à les adapter à présente loi.

### *Une série de dispositions tout à fait nouvelles*

Le projet de loi comporte des dispositions absolument nouvelles concernant:

1. certaines maladies et leur traitement,
2. les personnes mineures.

### *Des listes de maladies*

Le projet de loi prévoit que le lieutenant-gouverneur en conseil peut identifier, par règlements, des listes de maladies selon trois catégories:

- (a) une liste de maladies et d'infirmités à déclaration obligatoire;
- (b) une liste de maladies à immunisation obligatoire;
- (c) une liste de maladies à traitement obligatoire.

Dans le premier cas, le projet de loi vise à obtenir une meilleure connaissance de l'incidence de certaines maladies et infirmités de façon à permettre une meilleure planification du développement des ressources humaines et physiques nécessaires à la prévention, au traitement et à la réadaptation des personnes malades.

Ce pourrait être le cas de maladies comme la sclérose en plaques ou plusieurs genres d'infirmités physiques comme la paraplégie pour lesquelles nous ne possédons pas de statistiques suffisamment précises de manière à attribuer à ces secteurs spéciaux les services adéquats ainsi que l'ont réclamé de nombreuses requêtes faites

au ministère et venant de plusieurs sources.

Donc, un médecin ou un établissement qui a connaissance d'un cas de maladie ou d'infirmité physique à déclaration obligatoire doit le déclarer au ministre suivant un mode qui sera défini par les règlements et tiendra compte de la confidentialité du dossier médical.

Dans le deuxième cas, il s'agit d'une mesure préventive qui peut avoir un caractère permanent (ce pourrait être le cas de la poliomyélite) ou un caractère temporaire, par exemple dans le cas d'un cataclysme pour éviter l'apparition de la fièvre typhoïde.

Enfin, pour le troisième cas, le traitement d'une maladie devient obligatoire quand il y a risque que la personne atteinte la propage; ce pourrait être le cas de la tuberculose.

Le projet de loi prévoit donc l'obligation pour la personne atteinte d'une maladie identifiée sur les deux dernières listes de se faire examiner, de se faire immuniser ou de se faire traiter; la même obligation valant pour un médecin, un centre hospitalier ou un centre local de services communautaires de prendre les mesures requises pour faire examiner sans délai cette personne, lui assurer les traitements que son état requiert ou la diriger vers un établissement en mesure de les fournir.

Afin d'assurer le respect de cette obligation, le projet de loi prévoit que, sur requête d'un établissement ou d'un médecin, une personne atteinte d'une maladie identifiée dans ces deux listes peut faire l'objet d'une ordonnance judiciaire lui ordonnant de se soumettre à un examen, une immunisation et des traitements quand il s'agit de maladies mettant d'autres personnes en danger.

### *Dispositions spéciales relatives aux mineurs*

En ce qui regarde les personnes mineures, les articles 34 et 35 du projet de loi constituent des dispositions tout à fait nouvelles adaptées au contexte social dans lequel nous vivons, a dit le ministre Claude Castonguay. Nous proposons pour les mineurs, dans certains cas, l'accès direct aux soins et aux établissements où le médecin a le droit de fournir les soins requis sans qu'il soit nécessaire d'obtenir le consentement des parents ou s'il y a lieu du tuteur ou curateur.

Ceci vaut pour les mineurs atteints d'une maladie à déclaration obligatoire (y comprise vénérienne), ou atteints d'une affection due à une consommation d'alcool ou d'autres drogues ou pour des jeunes filles devant suivre des traitements prénataux et accoucher.

Dans le même sens, le projet de loi prévoit qu'un médecin ou un établissement doivent fournir les traitements requis quand la vie d'une personne mineure est en danger à cause d'une affection quelconque.



## Monsieur L. P. Bonneau nommé conseiller scientifique au Ministère des affaires sociales

Monsieur Louis-Philippe Bonneau a accédé au poste de conseiller spécial auprès du sous-ministre pour toutes les questions relatives à la politique scientifique du ministère des Affaires sociales du Québec.

Les responsabilités de monsieur Bonneau consisteront essentiellement à :

- rationaliser et assurer une meilleure rentabilité de la production scientifique dans le domaine des affaires sociales;

- définir les priorités de recherche et de développement scientifiques en assumant la responsabilité administrative des programmes de recherches subventionnés par le ministère;

- assurer la liaison avec le Comité des politiques scientifiques du gouvernement du Québec en lui transmettant des suggestions et recommandations pour tout ce qui concerne le domaine des affaires sociales.

Monsieur Bonneau a occupé la charge de vice-recteur exécutif à l'Université Laval de 1961 à 1972. Il a de plus rempli de nombreuses fonctions qui l'ont amené à suivre de très près les différentes activités tant du secteur des sciences que de celui de la santé au Québec et au Canada. Il fut ainsi membre du Defence Research Board, du Comité des sciences et de la médecine à l'Expo 67, du Conseil National de Recherches, et co-commissaire de la Commission pour l'étude de la rationalisation de la recherche universitaire. Il fit également partie des conseils d'administration de divers hôpitaux de Québec.

## Légalisation de la profession des techniciens dentaires en Ontario: le gouvernement rejette les recommandations du Comité d'études ad hoc

L'Ontario se propose d'autoriser les techniciens dentaires à entrer directement en contact avec le public, a déclaré Robert Welch, secrétaire du développement social, le 26 juin dernier.

Il a informé les membres de l'Assemblée législative de la création "d'un nouveau praticien de la santé qui sera connu sous le nom de technologue dentaire", en vertu d'une loi qui sera présentée à la session d'automne. Un comité sera formé au cours de l'été afin de fixer les standards exigés des techniciens dentaires. Ce comité comprendra trois membres choisis dans le public, un dentiste, un technicien dentaire, un hygiéniste dentaire et, une fois le programme d'autorisation en marche, un technologue dentaire.

La décision du gouvernement de l'Ontario contredit l'une des principales

recommandations exprimées dans le rapport du Comité d'études ad hoc sur la question des techniciens dentaires, stipulant que "nul personnel auxiliaire ne soit autorisé à traiter directement avec le public, sauf sous la surveillance immédiate d'un dentiste".

Le rapport du Comité d'études ad hoc rendu public aussi le 26 juin dernier est l'oeuvre de trois profanes (voir la livraison de mars 72 du Journal de l'ADC, page 99). Il signalait que l'autorisation donnée aux techniciens de traiter avec le public sans intermédiaire pourrait contribuer à une baisse des honoraires mais que "les avantages de cette pratique qui assureraient une saine compétition étaient largement dépassés par les dangers éventuels auxquels serait exposé le public".

Les auteurs du rapport avisent aussi le gouvernement qu'ils "croient fermement que la responsabilité ultime de la santé dentaire doit reposer uniquement sur le dentiste".

Le rapport réclame une augmentation substantielle des amendes imposées pour l'exercice illégal de la dentisterie ainsi que le droit d'avoir recours à l'injonction. En réponse à une question portant sur cette question, monsieur Welch a déclaré que la nouvelle loi dentaire comporte des dispositions prévoyant l'augmentation des amendes imposées pour toute pratique non autorisée de la profession.

## Ontario: la direction des disciplines de la santé confiée à un Conseil formé de profanes

Le 28 juin dernier, des mesures législatives, destinées à imposer un contrôle public sur tous les organismes professionnels chargés de la direction et de la discipline des membres des professions de tous les secteurs de la santé, furent proposées à l'Assemblée législative de l'Ontario.

Aux termes de ce projet de loi, sept citoyens aucunement reliés aux groupements professionnels en cause seront appelés à constituer un Conseil des disciplines de la santé qui exercera une autorité marquée sur toutes les disciplines concernées et assumera la responsabilité d'assurer l'efficacité de la réglementation et de la surveillance de leur gestion.

Seize collèges ou organismes modérateurs seront soumis à l'autorité du Conseil. Ces collèges comprendront des sections distinctes réservées aux dentistes, aux hygiénistes dentaires et aux techniciens dentaires. Le public y sera représenté au niveau des conseils de direction. Le Conseil comprendra aussi des comités de griefs et de discipline dont l'action se conformer à un mode de procédure uniformisé.

Le Conseil des disciplines de la santé surveillera l'action des bureaux

de chaque collège dont il exigera des rapports et des renseignements. Il revisera les mesures législatives concernant les dispositions prises par les diverses disciplines à l'égard de leurs services respectifs et procèdera à des enquêtes, le cas échéant. Le Conseil aura aussi l'autorité d'édicter des règlements qui seront prioritaires en cas de conflit avec les règlements des collèges. Il soumettra aussi annuellement un rapport au ministre de la santé.

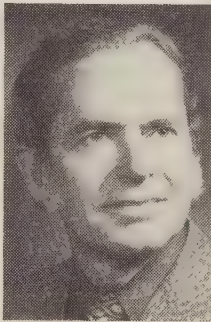
Ce Conseil entendra aussi les griefs des candidats dont l'inscription aura été refusée par un collège ainsi que ceux des membres mécontents de l'interprétation de leurs griefs par leur collège respectif. Le Conseil aura alors l'autorité de réclamer, en l'occurrence, que le bureau du collège reconsidère une candidature, soit en permettant au candidat de se soumettre à un examen ou en exigeant qu'il acquière une formation professionnelle additionnelle, ou encore en recommandant que la candidature contestée soit acceptée dans l'éventualité où le Conseil reconnaîtra que le collège en question n'a pas rendu justice au candidat.

## L'enseignement dentaire

### Promotion du rédacteur adjoint à Laval

Le docteur Paul Simard de Lévis, Québec, a été promu au poste de directeur de l'Ecole de médecine dentaire de l'université Laval. Il succède au docteur Gustave Ratté.

Le docteur Simard, qui occupait jusqu'ici le poste de secrétaire de l'Ecole de Laval, avait été nommé antérieurement rédacteur adjoint du *Journal de l'Association dentaire canadienne*. Le nouveau directeur détient un DDS de l'université de Montréal depuis 1948 et un diplôme en hygiène dentaire publique (1958) de l'Ecole d'hygiène de la même université.



Le docteur Paul Simard

Rédacteur fondateur du *Journal dentaire du Québec*, le docteur Simard est aussi membre honoraire de l'Association des chirurgiens-dentistes de la province de Québec. Président sortant de l'Association canadienne des dentistes en hygiène publique et de la Ligue



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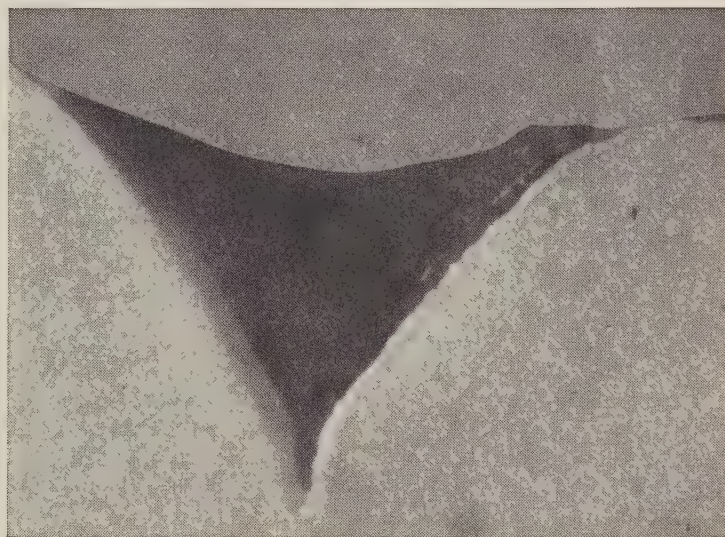




# New Caulk sealant provides significant reduction in occlusal caries

In a two-year clinical evaluation conducted by the Eastman Dental Center, Rochester, New York, a single application of Caulk NUVA-SEAL provided 99% caries reduction in permanent teeth and 87% caries reduction in deciduous teeth compared to control teeth.<sup>1</sup>

The new Caulk NUVA System consists of NUVA-SEAL (Pit and Fissure Sealant) and NUVA-LITE (Activator Light). The sealant is simply brushed on conditioned occlusal surfaces, then "set" by ultraviolet rays from the light. Result: a hard, smooth plastic shield.



50X magnification of sectioned tooth shows the complete filling and excellent adaptation of NUVA-SEAL in a fissure.

The treatment—designed primarily for children and young adults—is quick, easy, painless.

And it may well be a milestone in preventive dentistry.

<sup>1</sup>Buonocore, M.G.: Caries prevention in pits and fissures sealed with an adhesive resin polymerized by ultraviolet light. A two-year study of a single adhesive application. Unpublished data. (Resume published in A.D.A. News, July 6, 1970.)

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Les 3 et 4 juin derniers avait lieu à Montréal la réunion annuelle de l'Académie Canadienne de Prosthodontie. Sur la photo apparaissent; assis, de gauche à droite: les docteurs Donald Kepron, responsable du comité scientifique; W. G. Woods, secrétaire-trésorier; Jacques Fiset, président; C. O. Boucher, invité d'honneur; Herbert Ptack, co-responsable du comité scientifique; debout, de gauche à droite: tous les conférenciers du programme scientifique, soit les docteurs J. S. Brudvik, Washington; G. A. Zarb, Toronto; Paul Jean, Québec; G. E. Smutko, Niagara Falls, NY; Françoise Michaud, Montréal; A. S. Weisgold, Philadelphie; W. R. Scott, Vancouver; L. B. Hilborn, Louisville, Ky; R. L. Lee, Colton, Cal.

d'hygiène dentaire de la province de Québec, le docteur Simard a de plus agi comme conseil auprès du ministre des Affaires sociales, du Québec, Monsieur Claude Castonguay, pour la conception du régime de soins dentaires pour les enfants.

## Les organismes dentaires

### Le docteur Ptack président de la Société dentaire Mont-Royal et de l'Alpha Omega de Montréal

Le docteur Herbert Ptack a été élu président de la Société dentaire Mont-Royal et du chapitre montréalais de la fraternité Alpha Omega. Il succède au docteur A. S. Wainberg.

Les autres officiers élus comprennent les docteurs M. P. Tenenbaum, vice-président; L. L. Prosterman, secrétaire correspondant; F. I. Muroff, secrétaire-archiviste; E. M. Hershenfield, trésorier; Ezra Kleinman, trésorier adjoint; William Klein, rédacteur et David Zacharin, archiviste.



Le docteur  
Herbert Ptack

## L'économie

### Couverture du programme de services dentaires prévue pour les enfants du Québec

Le programme de services dentaires prévu au Québec pour les enfants âgés de sept ans et moins a marqué un progrès vers sa réalisation concrète alors que le gouvernement annonça, le 31 mai dernier, l'éventail de la couverture du programme des services offerts. Ces derniers comprendront:

- les services préventifs: enseignement et démonstration des mesures d'hygiène buccale, analyse de la diète, prophylaxie et application topique de fluorures;

- les services de restauration: amalgames; silicates, résine, composite pour les dents antérieures, couronnes en acrylique à polymérisation rapide, couronnes en acier inoxydable, couronnes en polycarbonate, couronnes en cellulose et couronnes à tenon;

- les services endodontiques: pulpotomie, traitement de canal, réimplantation des dents luxées, ouverture d'urgence de la chambre pulpaire;

- les services chirurgicaux: tous les services énumérés dans la loi de l'assurance-maladie. Les extractions dentaires ne font pas partie de la couverture des services prévus pour les enfants au-dessous de cinq ans.

Le projet de loi prévoyant les soins dentaires gratuits a été présenté à l'Assemblée nationale du Québec il y a un an passé, mais les négociations ont progressé lentement. Les mois à venir

seront consacrés à de plus amples discussions touchant les honoraires attachés à chaque service compris dans le programme. Quelques 600,000 enfants seront admissibles à ces soins au Québec.

### Couverture pour les services externes reçus hors du Québec

Tous les services externes couverts par le régime québécois de l'assurance-hospitalisation seront désormais dispensés gratuitement aux résidents assurés du Québec dans certains hôpitaux de l'Ontario, du Nouveau-Brunswick et de Terre-Neuve, liés par contrat avec le ministère des Affaires sociales.

Cette initiative est essentiellement destinée à mettre fin aux problèmes des québécois résidant dans les zones limitrophes, notamment les habitants de Hull, qui n'étaient pas couverts jusqu'à présent pour les services externes reçus dans un hôpital situé hors du Québec.

A la suite d'ententes avec les gouvernements de l'Ontario, du Nouveau-Brunswick et de Terre-Neuve, des contrats de service ont été proposés par le ministère des Affaires sociales à 13 hôpitaux qui s'avèrent plus accessibles à la population frontalière que des hôpitaux situés au Québec même. Déjà cinq de ces hôpitaux ont accepté les termes de ces contrats et se verront remboursés selon les taux en usage au Québec.

Les hôpitaux signataires sont les suivants: au Nouveau-Brunswick, l'Hôtel-Dieu St-Joseph-de-Campbelton et l'Hô-



pital régional d'Edmunston; à Terre-Neuve, le Jackman Memorial Hospital de Labrador City; en Ontario, l'Ottawa General Hospital et l'Hôpital général de Hawkesbury. Des contrats analogues sont en voie de préparation avec sept autres hôpitaux de l'Ontario et un hôpital du Nouveau-Brunswick de manière à couvrir toutes les agglomérations frontalières du Québec.

Selon les termes de l'entente, les résidents assurés du Québec y recevront gratuitement les soins d'urgence administrés dans les 24 heures qui suivent un accident. Ils seront également couverts pour les interventions chirurgicales mineures ainsi que pour des traitements de radiothérapie, de physiothérapie, d'ergothérapie, d'audiologie, d'orthophonie médicale. La couverture comprend aussi les services diagnostiques comme les radiographies et les électrocardiogrammes.

## Rapport annuel de la Régie de l'assurance-maladie

Le rapport annuel de la Régie de l'assurance-maladie du Québec révèle que le taux de 0.8 p.c. fixé par la Loi pour la contribution des Québécois au financement du Régime d'assurance-maladie s'est avéré suffisant de telle sorte que l'année 1971-72 se termine avec un excédent de \$8.7 millions.

Le rapport annuel est accompagné d'un rapport statistique. C'est la première fois que le Gouvernement a en main toutes les données pertinentes relatives aux revenus des professionnels de la santé, notamment des médecins.

Le ministre des Affaires sociales, monsieur Claude Castonguay, a demandé au personnel de son ministère et de la Régie d'effectuer une analyse des données qui sont révélées dans ce rapport de manière à identifier les écarts de rémunération entre les diverses spécialités médicales et chirurgicales, ainsi qu'entre les divers professionnels de la santé de façon à ce que l'on puisse en déceler les causes.

Le ministre a aussi déclaré qu'il n'avait pas l'intention de demander à l'Assemblée nationale de hausser le taux des contributions pour l'année en cours et qu'il verrait à utiliser le surplus en caisse de manière à favoriser une amélioration de la distribution des services de santé.

## Opinion d'un dentiste politicien sur la question des techniciens dentaires

Les dentistes qui assistèrent au congrès de l'Association dentaire de l'Ontario, le 14 mai dernier, ont entendu l'un de leurs membres revendiquer le principe que les techniciens dentaires devraient

être considérés comme des auxiliaires. S'adressant au Chapitre ontarien de la Société canadienne de la dentisterie pour enfants, le docteur H. C. Parrott, un orthodontiste de Woodstock, apporta des arguments pertinents pour appuyer un mémoire soumis, l'an dernier au gouvernement de l'Ontario, par les techniciens dentaires.

Le docteur Parrott qui fut élu député conservateur à l'assemblée législative de l'Ontario, en octobre dernier, souligna que les techniciens avaient recommandé l'application d'un "contrôle très sévère" des qualités et titres ainsi que de la formation de leurs membres. "La proposition qu'ils soumettent à l'effet d'exiger que les futurs techniciens dentaires reçoivent une formation pratique de deux ans en plus de deux années de formation théorique est exagérée", remarqua-t-il.

"Franchement, je doute qu'il faille consacrer quatre années pour former un technicien", dit-il, ajoutant que cette formation pourrait être acquise en deux années, une année de travaux pratiques et une année de cours théoriques.

Le docteur Parrott avertit ses auditeurs que, pour corriger, l'état actuel où plus de gens demeurent sans traitements qu'il s'en trouve qui sont soignés, les dentistes devront recourir à un plus grand nombre d'auxiliaires, y compris des techniciens. "Nous devons les accepter, dit-il, non sans avoir au préalable établi de toute évidence, des programmes formels de formation et pris les dispositions légales pour reconnaître le rôle plus étendu qu'ils pourraient assumer en contribuant aux services de soins".

Le docteur Parrott exposa clairement qu'il était entièrement opposé à la méthode adoptée par les techniciens pour parvenir à leurs fins. Il n'est pas d'accord non plus avec la proposition voulant que tous ceux qui sont en exercice actuellement reçoivent automatiquement du gouvernement l'autorisation de pratiquer, sans être tenus de recevoir au préalable la formation voulue et de subir les examens appropriés.

Au cours d'une entrevue, il a déclaré que les techniciens dentaires actuels devraient subir un examen pratique et recevoir une formation théorique d'un an avant de recevoir l'autorisation de pratiquer.

Par ailleurs, il fit l'éloge du programme de soins dentaires pour les enfants de l'Association dentaire de l'Ontario, mais critiqua l'Association pour avoir recommandé de limiter au début les services aux enfants de trois ans et moins et d'étendre les services aux plus âgés par étapes d'une année à la fois.

Le docteur Parrott a noté qu'il faudrait 15 ans pour qu'un tel régime couvre tous les écoliers de la province. "À mon point de vue", ajouta-t-il, "ce programme est totalement inacceptable; son évolution est beaucoup trop lente".

Réclamant instamment la mise en application immédiate du programme, il suggéra de consacrer un ou deux ans

pour le mettre à l'essai. Par la suite, le nombre d'enfants qui en bénéficierait pourrait être considérablement accru.

Le docteur Parrott suggéra aussi d'inclure un groupe d'enfants plus âgés dès la phase initiale du projet afin d'évaluer les possibilités d'incorporer globalement les soins dentaires au programme.

## La fluoruration

### Le Collège des médecins et chirurgiens appuie la fluoruration

Le Collège des médecins et chirurgiens de la province de Québec est officiellement entré dans la lutte en faveur de la fluoruration, se ralliant ainsi à la campagne entreprise, depuis quelques années par le Collège des chirurgiens dentistes et la Ligue d'hygiène dentaire.

Au cours d'une conférence de presse conjointe, réunissant des délégués de tous les médiums d'information, des représentants du Collège des médecins et chirurgiens, du Collège des chirurgiens dentistes, de la Ligue d'hygiène dentaire, ainsi que des porte-parole des universités de Montréal, Laval et McGill, le docteur Jules Gosselin, président du Collège des médecins et chirurgiens, a déclaré que les données statistiques démontrent que l'enfant qui boit de l'eau fluorée durant la période de formation de ses dents aura 65 p.c. moins de cavités que celui qui boit de l'eau non fluorée.

En plus d'être reconnu comme un moyen efficace de prévenir la carie dentaire, ajouta le docteur Jules Gosselin, la fluoruration de l'eau potable contribue à renforcer les os chez les personnes de 45 ans et plus, sans que la quantité de fluorure utilisée de l'ordre de 1.2 partie par million, n'exerce aucun effet nocif sur la santé.

Ces témoignages sont corroborés par l'expérience de 90 millions d'Américains et sept millions de Canadiens qui absorbent quotidiennement de l'eau fluorée sur le continent. Ajoutons que la majorité des villes importantes du pays, dont Toronto, Edmonton, Ottawa, London, Hamilton, Saskatoon et Halifax pratiquent déjà la fluoruration de l'eau de consommation.

Les représentants de la Ligue d'hygiène dentaire ont distribué à tous les journalistes présents un dossier technique réfutant toutes les objections courantes concernant les conséquences nocives faussement attribuées à l'absorption d'eau fluorée et l'aspect légal de cette pratique établissant que la fluoruration ne porte pas atteinte aux libertés fondamentales de l'individu. Ce dossier comporte aussi une étude de l'OMS ainsi que le code de procédure pour la fluoruration de l'eau adopté par le ministère des Affaires sociales du Québec.

Les médecins présents ont établi clairement qu'il ne s'agit pas d'ajouter un "médicament" à l'eau potable, mais



"d'ajuster le taux naturel de fluorure afin qu'il soit mieux approprié aux besoins alimentaires de la population." "En définitive", ont-ils ajouté, "la fluoruration est le moyen le plus facile et le moins onéreux de fournir à tous cet élément nutritif essentiel."

A cette importante prise de position, le Collège des médecins et chirurgiens était aussi représenté par le docteur Augustin Roy, secrétaire-archiviste, alors que le docteur Gérard Albert y représentait l'université de Montréal, les docteurs Gérard H. Weinlander et William Sanders, l'université McGill et le docteur Paul Simard, l'université Laval. D'autre part, la Ligue d'hygiène dentaire y était représentée par son président, le docteur Denis Laflamme et le docteur Marcel Albert, trésorier du même organisme et rédacteur du *Journal dentaire du Québec*.

## La recherche

### Les dents perdues accidentellement devraient être replantées

Quand une personne perd une dent à la suite d'un coup, elle devrait s'empresser de la retrouver sur-le-champ, l'envelopper dans un linge humide (une solution légèrement salée fera l'affaire) et se rendre chez le dentiste aussi rapidement que possible, afin qu'elle soit replantée.

Ce rappel opportun provient du docteur Maury Massler, un scientifique de l'Université de l'Illinois. Le docteur Massler ajoute qu'une bonne partie des résultats de la recherche animale relative à la réimplantation peuvent maintenant s'appliquer avec succès chez les humains.

Afin d'assurer la survie de la pulpe, il faut conserver la dent dans un milieu humide et la replanter dans l'intervalle d'environ une demi-heure après l'accident. Le tissu périodontique est susceptible de survivre et peut être réattaché dans un intervalle allant jusqu'à six heures après l'accident. Le docteur Massler précise que les dents jeunes ont de meilleures chances de survivre que les dents ayant atteint leur maturité.

"Le traitement le plus efficace consiste à plonger brièvement la dent pendant cinq minutes environ dans une solution de 2 pour cent de fluorure de sodium, immédiatement avant la replantation. Ce procédé retarde la perte de substance subie par la racine et augmente les chances de voir la dent servir durant plusieurs années, que la pulpe survive ou non".

En discutant des procédés de réimplantation le docteur Massler indique

que des applications de tétracycline à la dent stimule la croissance de l'os de la mâchoire dans la région qui entoure la dent, ce qui a pour effet de l'ankyloser et de la fixer solidement.

Toutefois, l'os ainsi stimulé remplace le ligament périodontique flexible dont l'action amortit les chocs subis par les dents. Lorsque la dent est ankylosée dans la gencive, elle devient incapable de supporter les variations de la pression et celles de la température, tout comme celle qui est normalement attachée au moyen de fibres périodontales élastiques.

### La carie de la racine est plus fréquente qu'on l'avait supposé

Les enquêtes dentaires des scientifiques de l'université Temple ont démontré qu'un plus grand nombre de personnes, qu'on l'avait d'abord soupçonné, souffrent de la carie des racines, une affection difficile à diagnostiquer et à traiter. Environ 40 pour cent des personnes examinées par le docteur S. T. Hazen, de Philadelphie, ont au moins une dent dont la racine est cariée. Son étude révèle que ce type de carie devient plus fréquent avec l'âge, à mesure que les gencives se rétractent, exposant ainsi les racines à la plaque favorisant la carie.

Dans un groupe formé de 500 employés d'une compagnie d'assurances, 60 pour cent des personnes âgées de 50 à 59 ans souffraient d'au moins une racine affectée d'une cavité, alors que cette proportion atteignait 70 pour cent parmi les personnes au dessus de 60 ans. La carie de la racine fut décelée dans une proportion de 46 pour cent parmi les personnes de 40 à 49 ans, de 26 pour cent chez celles de 30 à 39 ans et de 13 pour cent chez des sujets du groupe de 20 à 29 ans.

Le docteur Hazen a noté que plusieurs lésions décelées aux racines au cours des examens cliniques ne se révélèrent pas à la radiographie parce que la carie de la racine se manifeste souvent sur les surfaces labiales, buccales ou linguales.

La restauration de la carie de la racine peut être difficile, particulièrement sur les surfaces interproximales. Conséquemment, le docteur Hazen recherche les moyens de prévenir la carie de se manifester et il précise qu'une mesure possible consisterait à mettre au point des agents capables de contrôler le développement de la plaque dentaire.

## Prix et nominations

Le docteur **Georges Lepage**, de Lévis, Québec, a été nommé membre hono-

raire de l'Association dentaire des chirurgiens dentistes du Québec. Le docteur Lepage a aussi été élu vice-président international de la Fédération internationale des Associations dentaires francophones.

Les prosthodontistes du Québec ont réélu le docteur **Jean Nadeau** à la présidence de leur association pour un deuxième terme consécutif. Le docteur Nadeau est directeur du Département de Prosthodontie à la Faculté de chirurgie dentaire de l'Université de Montréal.



Le docteur  
Jean Nadeau

Le Conseil d'administration de l'Association des Chirurgiens-Dentistes du Québec a réélu le docteur **Hubert La Belle** au poste de président lors d'une récente réunion. Ont également été élus, les docteurs: **Pierre-Paul Prud'homme**, de Shawinigan Sud, 1er vice-président; **William Klein**, 2e vice-président; **Claude Chicoine**, trésorier; **Pierre-Yves Lamarche**, secrétaire, tous de Montréal; **Roland Vallée**, de Québec, conseiller; et **Louis-Marie Breton**, de Ville St-Laurent, conseiller.

Le Conseil d'administration a de nouveau choisi le docteur **Paul Lacoursière** comme président d'assemblée. Le docteur **Marcel Hébert** est rédacteur du *Journal Dentaire du Québec*.

## Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 31 juillet 1972:

Fonds à revenu fixe \$12.976;

Fonds d'actions ordinaires \$29.325.

L'avoir total (valeur marchande) du régime se montait à \$13,635,629.12.

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### Book Reviews

#### Oral Diagnosis/Oral Medicine

*D. F. Mitchell, S. M. Standish and T. B. Fast. Ed 2. Philadelphia, Lea & Febiger, 1971. (Available from The Macmillan Company of Canada Ltd, Toronto) 457 p. Illus. \$20.00*

This book could be of great assistance to the undergraduate student and an excellent review for the general practitioner.

Section 1 presents a logical and systematic approach to diagnosis permitting the novice to conduct an adequate examination early in his clinical training and to advance as rapidly as his program permits. The material is presented with simplicity and brevity. Fortunately, it is clinically oriented—a true credit to the authors. Throughout the

text, basic concepts of diseases are correlated with clinical signs and symptoms. The section on "Fundamental Disease Processes" follows the line of the "Surgical Sieve": (1) developmental disturbances; (2) degenerative and reactive processes; (3) physical, chemical and biological injuries; (4) inflammatory and infectious diseases; (5) neoplasia; (6) blood dyscrasias; (7) endocrine and other metabolic disturbances; (8) nutritional imbalances; (9) dermatoses; (10) neurologic and psychogenic disorders.

Section 2 gives attention to important genetic and epidemiologic considerations which guide one toward correlation of the patient's past history and his presenting physical findings. The physical examination proceeds in an orderly fashion through anatomic regions. Appropriate diagnostic techniques and instrumentations are discussed. The authors give a comprehensive compilation of diagnostic tests available in oral and clinical pathology laboratories with particular reference to biopsy, cytology, and haemopoietic tests. These can be used in accordance with the readers' training and experience.

Differential and definitive diagnosis and emergency management of pain and discomfort are described in Section 3. The authors proceed through the pains arising from the pulp, gingiva,

periodontium, sinus, muscles of mastication and the temporomandibular joint. The methods of treatment could possibly be re-evaluated. This is followed by the recognition of specific diseases and conditions of increasing complexity which involve the various anatomic regions—face and skin, neck, major salivary glands, intra-oral soft tissues and jaw bones. Deserving special recognition is a simplistic relationship chart of injury to bone and its reactions, signs, symptoms and radiographic interpretation.

Section 4 is devoted to treatment planning and patient management. A special chapter deals with common dental emergencies encountered by the general practitioner. However, the method of treatment advocated for painful periodontal conditions is open to discussion. Dento-medical management of dire emergencies is presented in a clear, concise form for ready reference. Chapter 18 deals with legal implications related to dental practice and offers an introduction to forensic dentistry.

The book is very strong in the "clinically" oriented diagnostic procedures which could be applied practically in any office, touching only on those that are "rare" to keep the practitioner and students aware but not bewildered.

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## Pins in Restorative Dentistry

G. L. Courtade and J. J. Timmermans. St. Louis, The C. V. Mosby Company, 1971. 314 p. Illus. \$36.25

Doctors Courtade and Timmermans have given us a much needed, well-documented and scientifically presented treatise.

While the casual student may regard pin retention a simple and superficial topic, the authors describe a myriad of applications each superbly rationalized and illustrated. Such a volume will broaden and expand one's approach to restorative dentistry.

The chapter headings illustrate the scope of the book: principles of pin retention, pulp chamber anatomy related to pin restoration, the twist drill and techniques for precise channels, pin retention for alloy and resin restorations, pin-retained foundations, restoration of endodontically-treated teeth (including the Para-Post system), vertical parallel pin techniques, vertical non-parallel pin techniques, horizontal pin splints, venting and cross-pinning, special applications and variations.

While many of us have been fortunate enough to hear Doctor Courtade speak on most of these topics from his broad clinical experience, nowhere has his material been illustrated so well or organized so completely as in this 300-

page volume. Instrumentation is meticulously described throughout, along with commercial availability of materials and components and step-by-step techniques. In one chapter, research-based conclusions governing the use of pins are presented by Joseph Moffa who discusses such considerations as the tensile strength of pins, factors affecting microleakage, fracture of tooth structure and cementing agents.

I recommend this book as a text for the general practitioner in guiding him through all forms of single restorations and as a reference for the specialist in outlining procedures useful in the conduct of multiple and complex reconstructions.

D. B. McAdam

## Additions to the Library

ANDERSON, W. A. D., ed. Pathology. 2 vols. Ed 6. St. Louis, Mosby, 1971. 1862 p. Illus. \$31.00

COHEN, L. Synopsis of medicine in dentistry. Philadelphia, Lea & Febiger, 1972. 212 p. Illus. \$10.75

COMBE, E. C. Notes on dental materials. London, Churchill, 1972. 265 p. \$10.50

DAVIDOFF, A., WINKLER, S. and LEE, M. H. M. Dentistry for the special patient: the aged, chronically ill and handicapped. Toronto, Saunders, 1972. 318 p. Illus. \$20.60

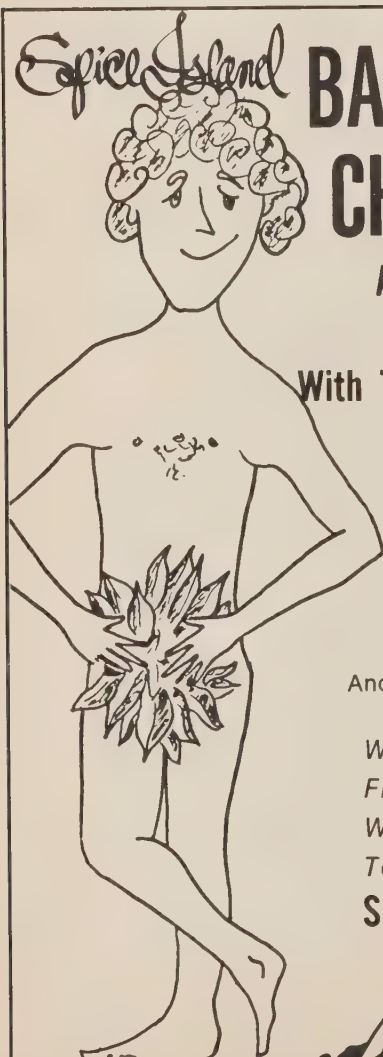
ESTOE, J. E., PICTON, D. C. A. and ALEXANDER, A. G. The prevention of periodontal disease. London, Henry Kimpton, 1971. 244 p. Illus. \$5.50

GARLINER, D. Myofunctional therapy in dental practice. Brooklyn, NY, Bartel Dental Book Co Inc, 1971. 177 p. Illus. \$22.50

HARNISH, H. Klinik und Therapie der Kieferzystem. Berlin, Buch- und Zeitschriften-Verlag Die Quintessenz, 1971. 238 p. Illus

HASSLER, R. and WALKER, A. E., ed. Trigeminal neuralgia; pathogenesis and pathophysiology. Toronto, Saunders, 1970. 196 p. Illus. \$16.00

SOCIETE FRANCAISE DE PEDODONTIE. Justification du traitement biologique de la dentine des dents temporaires et des premières molaires permanentes. Quatrième Journée d'Etude Française de Pédodontie, Nantes, 18 avril 1970. 175 p. Illus. Vol IV, 1970



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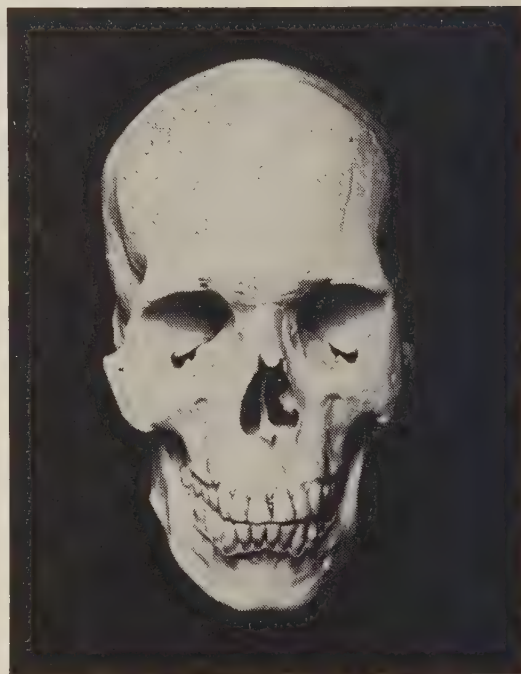
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# Indonesia

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traditions and its cultures



(Left) The tomb of King Sidebutur in Tomok on the Isle of Samosir. (Centre) Members of the Ramayana Ballet perform in colourful costumes. (Bottom Left) The dark hair, eyes and complexion of this young girl are typical of the Indonesian people. (Bottom right) Characters from one of the ever-popular puppet plays performed after sunset. (Opposite page) Scenes representing the rugged and uniquely beautiful landscape of Indonesia.



Indonesia's 3,000 islands stretch from Sumatra to West Irian, along the 2,500 mile span of the world's largest archipelago, linking the Indian and Pacific Oceans and providing a bridge between Australia and Southeast Asia.

The islands — some large like Borneo and Sumatra, well-known like Java and Bali; others tiny, half-forgotten hideaways — offer great natural beauty and impressive variations in topography. As yet, only 7 per cent of the country's total land mass has been mapped in any detail.

The tropical climate, rich soil, large forests and abundant minerals of Indonesia make it one of the world's richest areas in terms of natural resources. Although the wealth of its forests remain largely untapped, the country is now directing its effort into developing its mineral resources. In fact, Indonesia now ranks as a leading producer of petroleum and tin.

Agriculture contributes almost 60 per cent of the national income with rice being the staple food. Commercial commodities for world markets include rubber, copra, tea, coffee, tobacco, pepper and palm oil.

The population is approximately 123 million. More than 65 per cent of this total is centred on the islands of Java and Madura which together represent only 7 per cent of the entire land mass. Java, birthplace of *Pithecanthropus erectus* — "Java Man," is about one-fifth the size of Alberta and supports a population in excess of 70 million. This represents the highest population density in the world; 1,500 people per square mile. As recent visitors from the Province of Alberta, where the population density is less than six people per square mile, Doctor and Mrs. MacLean experienced the shock of reality related to over-population and its associated problems.

In contrast to the potential national wealth of Indonesia, the per capita income of its people is among the lowest in Southeast Asia. In developing the country the government is attempting to introduce programs of a labour-intensive nature to increase employment opportunities.

Although Indonesia is home to dozens of various tribal and ethnic groups, its people are basically Malay in origin and bear such distinguishing characteristics





as dark complexions, wide open faces, black hair and round, dark eyes. Since the Indonesian independence of 1945, the people have experienced a growing sense of national pride and a deep sensitivity for their country. However, progress is still hampered by a frustrating combination of inertia and lack of working experience among the people. Transportation and communication services are inadequate and such facilities as hospitals, telephones, telegraph and mail service, as well as air and rail transportation, are often extremely inefficient or else non-existent.

Seventy per cent of the people are Moslems and the remainder follow the Hindu or other religious faiths. In their social life, the Indonesian people are strongly influenced by customs, traditions and superstitions of a magic-religious nature. The belief in spirits and supernatural causes of disease and death is still prevalent, resulting in a certain fatalism regarding disease and death.

The extended family concept is a way of life in Indonesia and it is not uncommon to find 35 to 60 people making up a strong family unit. Inherent in the

acceptance of the extended family concept is the recognition of children as potential providers or "insurance" for the ageing members of the group. And, with infant mortality running high and 50 per cent of the annual death toll made up of children, parents have many children in the hope that a sufficient number will survive to become providers for the unit. As might be expected, these circumstances make it very difficult to introduce the concept of family planning and have it accepted by the people. Until it is accepted, the annual three per cent increase in population will continue unabated. Life expectancy in Indonesia appears to be about 55 years.

During their five week study, the MacLeans experienced a cultural shock as well as a shock related to the realities of over-population. They expressed admiration for the tolerance of the Indonesian people toward the many vicissitudes life presents them with. They are proud and sensitive people and, unlike natives of other cultures, do not really voice objection or show a disfavoured reaction toward a visitor who may err by way of custom or speech.





One of the world's richest areas in terms of natural resources, Indonesia's 3,000 islands offer great natural beauty and impressive variations in topography.

## Dental services in Indonesia

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Where should dental care rank in the priorities of a nation struggling to meet the basic social and health care needs of its people? This was one of the key questions we had to consider during our five week study of dental services in Indonesia on behalf of CARE/MEDICO.

CARE/MEDICO, a service of CARE, supports a Canadian medical team of specialists to the hospitals in Surakarta, better known as "Solo," and a visiting specialist's program to teach graduates in the Orthopaedic Department at Central Hospital in Djakarta. Indonesia had expressed interest in having some type of assistance in the dental field and CARE/MEDICO was interested in sponsoring a survey to find out if there were areas where they could plan a contributory program.

Our decision in October 1970, to volunteer to do the study left little time for any detailed planning prior to our November arrival in Indonesia. Moreover, in attempting to prepare ourselves, we discovered that information regarding the state of dentistry in this area of the world was extremely difficult to obtain. In fact, it was almost non-existent.

Upon our arrival in Indonesia, we established personal contact with a number of Indonesian officials and, through their interest and helpfulness, were able

to work out detailed plans for the survey. Consequently, we had the opportunity to visit five of the seven dental schools, auxiliary training facilities, several central and local hospitals, military service clinics, public health community clinics and school dental clinics, as well as to address faculty and students at various dental schools and members of local societies of the Indonesian Dental Association. We also discussed dental education, the organization of dentistry and the delivery of health services with more than 200 educators, members of dental and medical professions, directors of hospitals, public health personnel and native peoples.

### Indonesia's governing structure

For governing purposes, Indonesia is divided into 26 provinces, each having a governor and its own administrative offices. The island of Java is divided into three provinces: East, Central and West Java. The national capital, Djakarta, and the city of Jogjakarta each have provincial status and are considered under special territories.

Each province is further divided into regions, districts and villages and, in the latter category, the village chief generally has great influence among the people and on the community as a whole. The indigenous health and social workers of the the villages still exert a considerable influence on village populations and have a great bearing on the acceptance or rejection of any type of services introduced by professionally educated health or social workers who come to the villages with new ideas and suggested changes in the native way of life.



The priority problems the Indonesians face bear little resemblance to those of North America. In the two decades following the Indonesian independence of 1945, there were setbacks in many facilities including the growth of social welfare services.

The present government came into office in 1968 and, in 1969, launched a five-year development plan. Priority objectives of the plan on the domestic front are: the provision of food and clothing; improvement of infra-structures; improvement in housing conditions, and increased employment.

One must question where dental care should rank in the priorities of a nation facing such problems as adequate food supply to its people, elementary education for the young, prevention of water-borne and other communicable diseases and the teaching of one language to its people. There are over 100 languages or vastly different dialects spoken throughout the country. This problem — along with other major problems such as the economic difficulties of the country and its people, the paucity of efficient inter-island and intra-island communication and transportation services, uneven population distribution, and vast cultural and behavioural differences within the country — combined with a shortage of dental manpower and facilities, makes the acceptance and delivery of dental services a very complex problem indeed.

#### Qualified dentists are scarce

Dental services are delivered by a variety of personnel which include the formally educated dentist, the school dental nurse, the dental technician and the self-taught, unqualified *Tukang Gigi*. Approximately 1,500 dentists practise in Indonesia and 650 of this number are involved in public health. Some of the dentists belong to local societies and to the Indonesian Dental Association which maintains a central office in Djakarta. Two or three dental journals a year are published from this office.

To help staff the emerging community dental clinics, a Health Act was passed in 1952 requiring all graduates in dentistry to work for the government in assigned clinics for at least three years before being granted a full-time private practice licence. Another law gives authority to the Minister of Health to declare as closed for the location of new private practices those cities which have relatively enough dentists. The intent of the second law was to prevent a rush of dentists to the larger cities and to encourage a more even distribution of health personnel throughout the country.

In the larger communities, such as Djakarta or Jogjakarta, a dentist may be considered for a private practice licence only after completing 15 years in the public health service. With the existing laws, and in view of the increase in the number of dental graduates, the problems of manpower shortage and its distribution are much more easily controlled. These same regulations also apply to the practice of medicine. It is interesting to note that medical graduates are permitted to practise dentistry without further qualifications.

The age distribution of the dentist population breaks down as follows: 20 per cent over 40 years of age; 60 per cent between 30 and 40; and 20 per cent under 30.



These distinctive saddle shaped houses are typical of the Batak people on Samosir Island.

The school dental nurse or *Rawat Gigi*, of which there are presently about 300, was introduced to staff the school dental service clinics. The program of training involves three years in government-sponsored schools. Responsibilities of the school dental nurse, under the supervision of the dental profession, are basically the emergent removal of teeth (often without anaesthesia) and simple amalgam and silicate restorations primarily for children. Although these nurses are now utilized only in the clinics of the school dental service, there is a possibility they will also be utilized in the community health centres — more specifically, where the school dental clinic and the community health clinic may be combined.

Dental technicians also have a formal program of training with training facilities located in dental schools, in some dental clinics and in the training school for dental nurses. Generally speaking, the dental assistant and the utilization of her services as known in North America was not evident in Indonesia.

A further group, the indigenous *Tukang Gigi* practise widely throughout Indonesia. The people of the villages are accustomed to, and widely seek, the services of this unqualified and self-taught operator for aesthetic crowns and dentures. The practice of the *Tukang Gigi* is frequently perpetuated from father to son. The number of practising *Tukang Gigi*'s is unknown but a minimum estimate is 6,000. One has no difficulty spotting the gaily decorated shop fronts and windows displaying their wares. In smaller communities, where they operate from a roadside stand or over-



sized orange crate, they are easily recognized by their display of impression trays hanging from a wire line.

The acceptance by the villagers of the services of qualified health personnel over the services of the indigenous health personnel such as the *Tukang Gigi* and the medicine man is, in itself, a long and slow process of education. In one village of about 800,000 people where a health clinic has been in operation for two years, approximately 15 to 20 people a day visit the dental clinic. And this is considered an improvement over the smaller numbers that visited the clinic during the first year.

Unlike the community health clinics, the hospitals are well accepted and utilized. The numbers of outpatients crowded into the various departments never ceased to amaze us. The hospitals are usually a complex of one-storey pavilions connected by covered walkways. In some instances, the complexes are so extensive that bicycles are used by the doctors to travel from one area to another. A well accepted and utilized dental department was present in all the hospitals we visited.

### Potential of dental schools unrealized

Indonesia has seven dental schools: five are in government sponsored or state universities and two are located in private universities. The State schools are located in Djakarta, University of Indonesia; Bandung, University of Padjadjaran; Jogjakarta, Gadjahmada University; Surabaya, Airlangga University; and Medan, University of North Sumatra. The private dental schools of Trisakti University and Mestope University are located in Djakarta. There appear to be many more applicants for admission than can be accommodated. The combined schools would have a capacity for graduating more than 300 dentists annually but, through a variety of circumstances, this potential has not been realized.

The dental undergraduate program of study, including the basic science courses, is five years in length. Because of difficulties created by curriculum planning, shortage of clinical facilities and of teaching materials, the students' attendance at dental schools is frequently prolonged to seven or eight years before they become candidates for graduation.

There are some differences in curriculum content among the schools. Also, the examination policy differs among the schools and, in some instances, seems to delay the orderly progression of the student through the program. New graduates from the private schools must sit an examination at, and set by, the University of Indonesia. There can be a delay of one to three years following graduation before the University of Indonesia can find the time, facilities and staff to examine the candidates from private schools.

Dental schools are presently being encouraged to adjust curriculum to give emphasis to preventive health measures and dental health education. They are being encouraged to provide field work, dental surveys and participating clinical experience in public health for all the undergraduates. We visited community health clinics where students on pilot projects were serving part of their clerkship in public health. These students were enthusiastic and becoming very cognizant of the problems they must face after graduation.



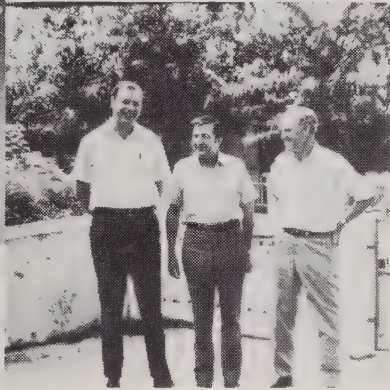
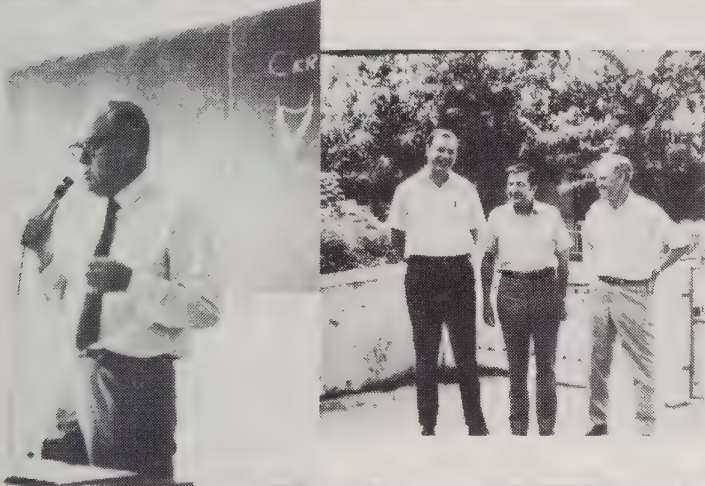
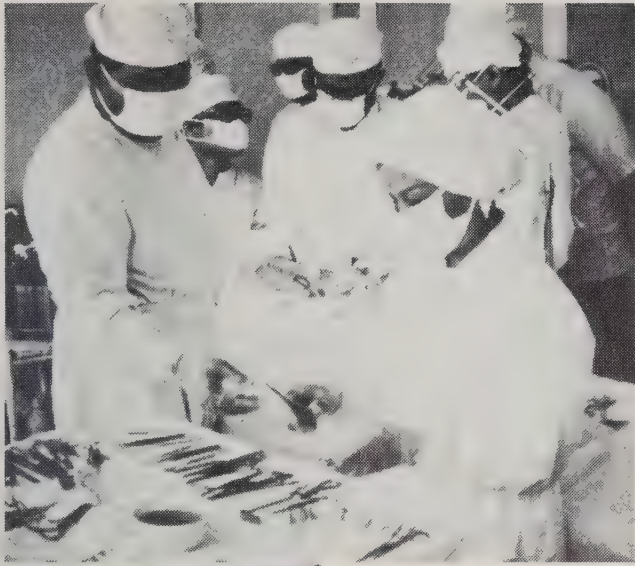
Top: Dental students at Gadjahmada University, Jogjakarta.

Left: Dr. Rustamadji, director of the Pulo Mas Community Health Clinic chats with Mrs. MacLean in the Pulo Mas Village.

Right: Dr. Soedibso, director of the Dental Nurses School, and Dr. Ali Dahlan, Faculty of Dentistry, University of Indonesia, are shown in front of the Indonesian Dental Association headquarters in Djakarta.

Bottom: House staff of "No. 4" in Solo. Left to right: night watchman, Dr. MacLean, cook, housegirl and gardener.





Top: Oral surgery in progress at the Central Hospital in Jakarta.

Left: Dr. MacLean lectures to staff and students of Trisakti University's Faculty of Dentistry, Jakarta.

Right: Dr. H. R. MacLean (right) with Lyle Smith (left), CARE administrator in Solo, and Dr. Ben Pothier, a general surgeon from Dalhousie, NB.

Bottom: Dr. MacLean looks in on activities at the Pulo Mas Community Health Centre along with the chairman of the Public Health Department, Faculty of Dentistry, University of Indonesia, and Dr. Ali Dahlan of the university's Faculty of Dentistry.

There is common agreement on the part of dental educators that the physical facilities are inadequate for the demands placed upon them. Although several of the schools are in the construction phase of new facilities, the time from commencement of construction to the equipping of the building can range from 15 to 20 years. The current shortage of facilities includes preclinical, clinical, postgraduate, libraries and office space.

In the dental libraries, it was of interest to note that a large percentage of the material available was in English. Frequently, this material is not effectively used by the student body because of language problems. It was felt that able staff members should be encouraged and supported to prepare in the Indonesian language, such materials as are deemed necessary and basic for student use in the undergraduate programs.

In a great many instances, the treatment observed in the teaching clinics, clinics of the hospital and of the community health services was the removal of teeth, frequently without the use of anaesthesia. Medical students at the University of Diponegoro in Semarang were required to spend one month in the dental clinic at Central Hospital learning how to extract teeth.

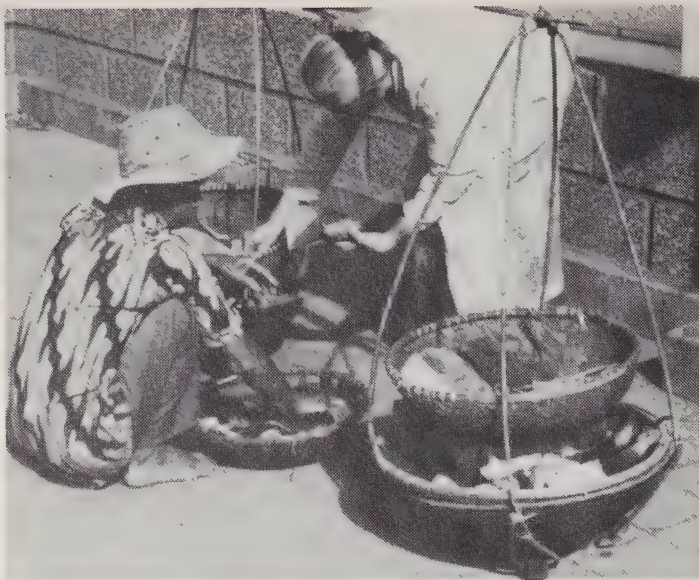
Comprehensive studies related to the incidence of dental diseases have not been made in Indonesia. From limited observations, it would appear that Indonesia does not differ greatly from other countries as far as the incidence of dental caries is concerned. There seems to be a fairly high percentage of the people with periodontal problems. In a number of the villages, betel nut chewing is still a habit. The number of reported cases of ameloblastomas appeared higher than we see on this continent. The staff at Gadjahmada University reported they still receive a fair percentage of individuals with supernumerary teeth and others with fourth mandibular molars.

### Need for better generalists

There appeared to be an over-emphasis and value placed on areas of specialization in the mind of the general practitioner. It seems that even if an individual holds a specialist's license, he still practises according to public demand as a generalist. Those dentists who have studied abroad in a special area may return to teach in that particular field. A considerable amount of frustration is evident among the specialists because of the lack of supplies, equipment and facilities for teaching and a lack of opportunity to utilize their special knowledge. It was felt that, at present, there is a great need to strengthen the basic undergraduate education to provide a better generalist and, through a program of continuing education, to upgrade the services delivered by those now in practice.

Within the last two years, the Dental Health Section in the Department of Health has been elevated to the level of a directorate, paralleling the Directorates of Mental Health, Nutrition, Medical Care and Maternal and Child Health Services. The Department of Health adopted a new policy for strengthening health services to the people of the communities and has a list of services which a health centre must provide. Dental health is included in the list for an integrated health





Street vendors are a common sight in the towns and villages of the various islands.

service. Prior to this, community dental health services were usually an independent operation in the community.

Emphasis is now being placed on dental budget, facilities, equipment and staff for the emerging health centres. Of these items, dental manpower appears to be the least of the problems because of the 1952 law that stipulates every new graduate must work for the government for at least three years before being granted a full-time private practice licence. With the lagging of available funds and equipment, an interim delay can result before graduates receive an assignment and fulfil their compulsory service. The government is having difficulties assigning a post to every graduate and this can reflect in a loss of dental manpower in the delivery of services.

The Dental Directorate has for a number of years given attention to the earlier school dental service program. To aid in the manpower demands of this service, the school dental nurse was introduced with the first training school established in 1954 in Djakarta. This has been followed up in 1969 with three new training schools located in Bandung, Surabaya and Makassar. There are presently approximately 115 school dental service clinics in operation. The philosophy of this service is changing to include dental health education and prevention supported with simple restorative procedures.

The Dental Directorate is of the belief that dental health education and prevention are of prime importance. Yet, this concept has not been effectively carried out in the health centres because of: (1) wrong attitudes of the dentist and a lack of appreciation of dental health education gained in his undergraduate years of study; (2) ignorance of the populace and the barrier of individual, cultural and social influences and beliefs; and (3) to some degree, the influence of the unqualified *Tukang Gigi* and other indigenous health workers.

Considering these factors, progress is slow and difficult. Another problem of some magnitude is the

lack of qualified and interested personnel necessary to carry out the government plans through a decentralized administrative organization on the provincial and local and village levels.

### Fluoridation cannot be considered

In considering the country as a whole, controlled communal water supplies are practically non-existent. This means that a program of fluoride-supplemented drinking water cannot be considered at this time, or for some time in the future. However, a great deal could be accomplished through other preventive measures and this is an objective of those at the federal level concerned with dental public health.

It was observed that salaries and wage scales in the government service are not sufficient to provide a living. As a result, government employees look to a second job or source of funds to provide sufficient income on which to live. In dental public health, the employees are committed to public service from about 7:00 am to 1:00 pm. The remainder of the day permits the employee to work in an area of choice to supplement income. Salaries for many workers are still supplemented by a most welcomed ration of rice and sugar. The rate of inflation, amounting to a whopping 650 per cent in 1966, has simmered down to about 50 per cent per annum.

Generally, communication problems exist throughout the country. They are evident at the university level and at professional and health services levels, right on down to the organization of the village itself. Differences in social and cultural backgrounds contribute greatly to this situation. Frequently, more harm than good can result from visits of health personnel who have no knowledge of the cultural backgrounds of a local area. A special study of the habits and customs of the area is of the greatest importance to a health worker because even the same word has different meanings in different localities.

Over-population is a problem of chief concern in Indonesia. Further, the people of these islands are in need of all known preventive health measures. Vaccines that will obliterate some diseases have not yet reached into the villages and the people's life style and lack of knowledge still makes the control of water-borne diseases a major problem. There is need for financial aid and medical technology in the curative aspect of diseases. Equally important is the need for health personnel, knowledgeable in the various social and cultural backgrounds, to go into the villages and encourage awareness of and participation in preventive measures among the people.

Treatment of people following the ingress of disease is necessary, but it will never control the problem. The main hope of success in controlling disease is prevention.

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## Cementation of dental implants: Rationale and preliminary observations

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*Because many dental implants are apt to fail after varying periods of service, the authors tested the value of acrylic and polyacrylate cements for securing intraosseous implants in position. Their preliminary clinical and histologic observations are encouraging.*

*Considérant que plusieurs implants en odontostomatologie ont tendance à faire défaut après avoir été en service durant des périodes dont la durée varie, les auteurs ont éprouvé la valeur des ciments acryliques et polyacrylates pour maintenir en place les implants intra-osseux. Leurs observations cliniques et histologiques préliminaires sont encourageantes.*

Successful replacement of lost natural teeth by implanted prostheses would advance dental treatment significantly. For all practical purposes both homogeneous and heterogeneous transplantation of teeth has failed. Several investigators have sought to circumvent the immunologic response to implanted teeth by using non viable substitutes. But such implants are also apt to fail in the long term. The successful use of cements to secure orthopaedic prostheses therefore prompted us to test this approach for dental prosthetic replacements. This article describes our preliminary clinical and histologic results.

### Review of literature

A number of workers have studied the use of plastic implants, principally in the form of acrylic resin roots or teeth.<sup>1-3</sup> In earlier work, such as that of Flhor<sup>4</sup> and Waerhaug and Zander,<sup>5</sup> frictional or mechanical retention was used to retain the implants in place. In recent years the tendency has been to make replicas of natural teeth, paying careful attention to correct root length and morphology, and to implant such replicas in the natural sockets. Hodosh and his associates<sup>6-10</sup> have published several papers in which they claim clinical success for prostheses implanted in humans for several years. Recently they claim to have obtained penetration of tissue into roots made of porous acrylic material implanted in humans<sup>11</sup> and similar successes with polymer-coated Vitallium pins.<sup>9</sup> Published photomicrographs lead us to doubt the validity of these conclusions.<sup>12</sup> Furthermore, Hamner<sup>13</sup> has recently rejected Hodosh's findings and corroborated Waerhaug and Zander's<sup>5</sup> earlier observation that "the lifetime of such an implant is limited, and that implantation of artificial roots into tooth sockets is not likely to be of practical value in prosthetic dentistry."

Hulbert<sup>14</sup> and Homsy,<sup>15</sup> using a similar approach, have evaluated the biocompatibility, porosity and resilience of new ceramic materials. These materials are highly porous ceramics which are coated on metal implants. The rationale for their use is that host bone is expected to proliferate into the pores of the ceramic. The size of the pores can be varied in manufacture. They should be sufficiently large to readily accommodate the ingrowth of blood vessels and osteogenic cells which are expected subsequently to deposit new bone within the ceramic coating. Other investigators have used porous substrates of glass ceramic and titanium in an attempt to achieve bony anchorage of the implanted prosthesis.<sup>14</sup> All these investigators believe that this method of implant retention will resist functional stresses.

While the use of a porous implant is relatively recent, mechanical methods have been used to retain and stabilize metal implants for nearly two decades. Two main designs are in current use:

1. A cast subperiosteal framework, usually of a stellite type alloy, which is intended to fit accurately the alveolar portion of the body of either jaw.<sup>16-18</sup> The casting may be retained by screws to the bone and a number of projections penetrate the mucoperiosteum into the oral cavity. The suprastructure rests on these metallic projections and it may be a fixed or removable prosthesis.



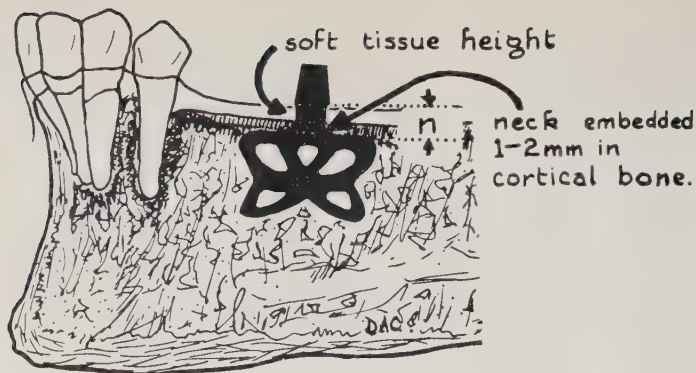


Fig 1 Diagrammatic representation of a blade vent prosthesis.

2. The so-called blade vent prosthesis is currently being used quite extensively in clinical dentistry, mainly due to the efforts of Linkow<sup>19</sup> (Fig 1). It is inserted into a slot cut in the bone of the mandible or maxilla and is retained in place by deposition of bony callus into perforations in the implanted blades. It has the advantage of maximum anchorage in the tissue, and this is achieved by the large size of the implant and its many perforations which are penetrated by new bone.

Proponents of the blade vent claim that it gives satisfactory clinical service in a high proportion of cases, provided meticulous attention is paid to the design and insertion of the implant and to the manner in which it is used as an abutment. Numerous such studies have been reported, most of which are based entirely on clinical observations.<sup>20,21</sup> However, few histological observations have been made<sup>22</sup> and organized longitudinal clinical studies are lacking. Many workers are critical of this method because of the technical difficulties of the procedure, the possibility of infection around the projecting parts and occasional exfoliation of the implant. Recently Armitage et al<sup>23</sup> correlated the early clinical, radiographic and histological findings after placement of endosseous implants into the jaws of rhesus monkeys. Their three month results showed that the implants were well tolerated by the primate tissues.

Considerable controversy still rages around the desirability of using such implants. It is worth noting that an implanted metal object never becomes incorporated into bone as does an accepted bone graft; it remains as a foreign body walled-off from the surrounding bone by a fibrous capsule.

The foregoing remarks concern implants retained by purely mechanical means or by ingrowth of tissue into, around and through the implant. The concomitant surgical procedures produce varying degrees of trauma which is difficult to control. Bone resorption and unfavourable tissue response appear to be a common occurrence. To date, insufficient consideration has been given to the mechanical stress system acting on the supporting bone and to the desirability of stimulating the natural supportive action of the periodontal ligament. This suggests that the design of implants and its relationship to the supporting bone should be reconsidered.

The requirements on which design of a successful stress-bearing implant should be based are: (a) use of biologically-acceptable materials; (b) adequate physio-



Fig 2 Diagrammatic representation of a metal implant retained in bone by means of a cement.

logical distribution of stress; and (c) attachment of the implant to bone through a system which simulates the function of the periodontal ligament.

These requirements may be met by using a cement which possesses the appropriate properties (Fig 2). The resulting stabilization would overcome some of the disadvantages of mechanical methods and there would be the additional advantage of immediate fixation. In the orthopaedic field, Charnley,<sup>24</sup> among others, has shown that acrylic cement can be used successfully to retain the mechanical stability of implanted femoral head prostheses over a period of years with little apparent sign of tissue reaction. Such satisfactory results may arise in part from the fact that acrylic cements have a modulus of elasticity intermediate between that of compact and cancellous bone. The success of the Charnley method in total hip replacement numbers several thousand cases over the past 10 years and the technique has been accepted by many surgeons.<sup>25</sup> The acrylic cements have also exhibited good tissue acceptance in extensive use in cranioplasty and orbital reconstruction.<sup>26-28</sup>

A second cement system, polycarboxylate cement, also appears from recent work to be well accepted by tissues and to possess adequate strength for cementation and improved adhesion to calcified tissue under oral conditions. This cement, described by Smith,<sup>29</sup> is composed of polyacrylic acid (PA) and modified zinc oxide (Z). The properties of PAZ have been described in detail.<sup>30-33</sup> A recent one year study by Peters et al<sup>34</sup> indicates that in vivo PAZ has a very low solubility and is non toxic. These authors conclude that PAZ possesses many advantages as a potential implant material in orthopaedic surgery. A pilot study was undertaken to explore the concept of cementation of dental implants.

## Materials and methods

Two mongrel dogs were used in a preliminary investigation to develop surgical techniques and cementation procedures. From this experience the following methodology was evolved:



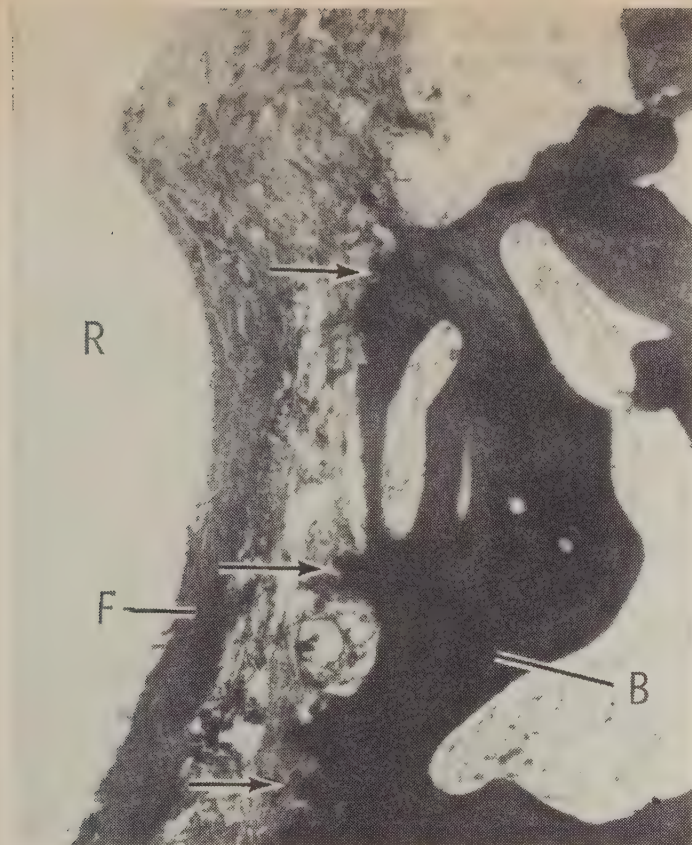


Fig 3 Tissue adjacent to a loose implant. Area formerly occupied by resin (R); fibrous capsule (F); bone (B); osteoclasts (arrows). H.E., x 85.

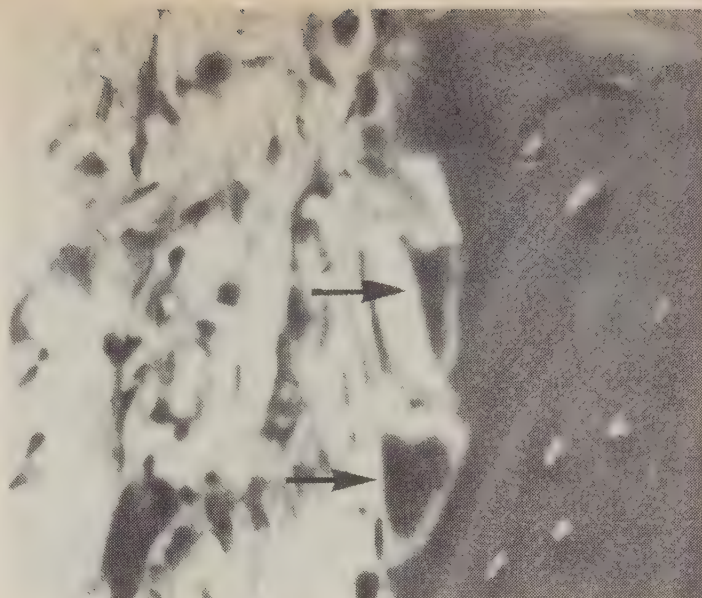


Fig 4 Higher magnification of typical osteoclast (arrows) such as illustrated in Figure 3. H.E., x 850.

**Acrylic cement** — This was a polymethyl methacrylate-methyl methacrylate material similar to a commercial brand. The preweighed powder was sealed in polyethylene envelopes and sterilized by ethylene oxide followed by adequate storage before use. The polymer powder and liquid monomer were mixed in the ratio 2:1 using sterile measuring and mixing equipment. The dough time was approximately four minutes. The material was then inserted into a sterile 1 ml disposable syringe (without needle) and injected into the prepared cavity. The setting time in vivo was approximately 10 minutes.

**Zinc polyacrylate cement** — The powder consisted of heat treated zinc oxide, and the liquid was an aqueous solution of polyacrylic acid prepared by aqueous polymerization of the monomer using a persulphate initiator. After sterilizing the materials by ethylene oxide, the powder and liquid were porportioned volumetrically (powder:liquid 2:1) and mixed using sterile equipment. The material was then transferred to a syringe and injected into the cavity. The setting time in vivo was approximately three minutes.

Four beagle dogs, 10 to 12 months old and each weighing approximately 35-40 lb, were premedicated with Atravet and anaesthetized with intravenous sodium pentobarbital. An endotracheal tube was inserted and bicusps and first molar teeth were extracted from each quadrant. The sockets were decorticated with a large round bur used at conventional speed and under a water spray. Every effort was made to keep the sockets free of blood when the cement was inserted. The implants, all of Vitallium, were made in the form

of implant screws, vented-type endosseous screws and cast simulated-tooth roots. Sixteen implants were inserted. Excess cement was removed and the buccal and lingual palatal/flaps were approximated and sutured with interrupted silk sutures. All implants were left free of occlusal contacts and the animals were fed a soft diet.

To date two of the animals have been sacrificed at three and four months postoperatively and clinical observations have been made on all the dogs. The dogs were perfused and block sections of the parts of the jaws containing the implants were prepared by routine methods for histologic examination.

## Observations

One of the 11 implants placed in the first two dogs was lost. It had been cemented into the mandible with polyacrylate cement. Five implants were loose; one of these was stabilized with acrylic cement and four with polyacrylate. Clinically, these implants showed absence of an epithelial attachment, exposure of the cement and variable inflammation of the gingiva. In each case difficulty had been encountered in the surgical procedure and this had involved fracture of roots, excessive removal of bone and poor control of haemorrhage.

Microscopic examination of the loose implant cemented with acrylic cement showed the resin to be surrounded by a capsule of fibrous tissue (Fig 3). Small areas of the connective tissue that had been infiltrated with lymphocytes and plasma cells were seen occasionally, but the striking finding was the presence of numerous osteoclasts on the surface of the adjacent bone (Fig 3, 4) and frequently occupying Howship's lacunae. The remaining five implants were firm; four of these had been stabilized with acrylic cement. Sulcular depth measured 2 to 4 mm, and plaque was found on all the posts.

Histologic observations on the firm implants cemented with acrylic cement showed that the resin was



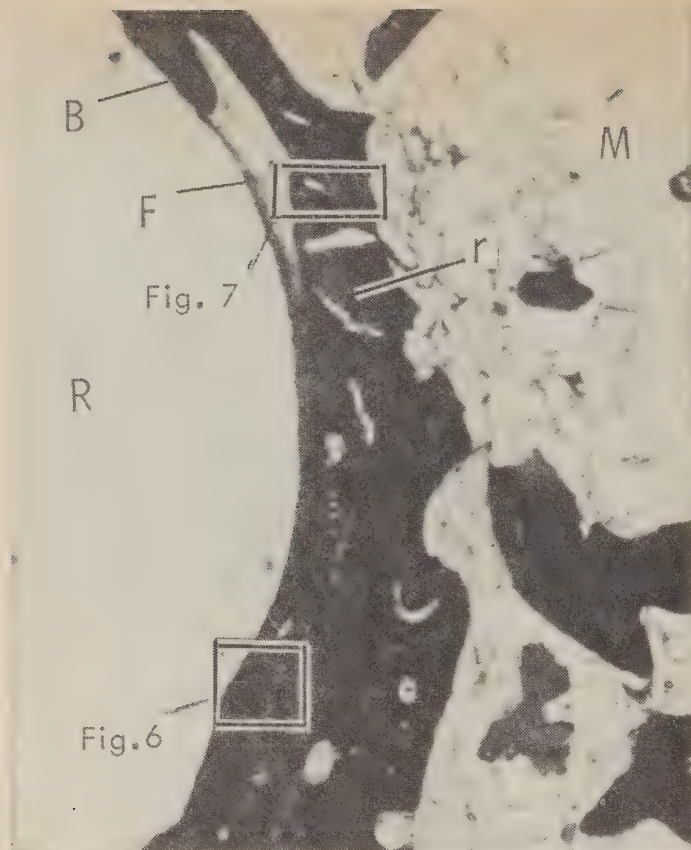


Fig 5 Tissue adjacent to a firm implant. Area formerly occupied by resin (R); fibrous capsule (F); bone (B); intact resin (r); marrow (M). H.E., x 85.

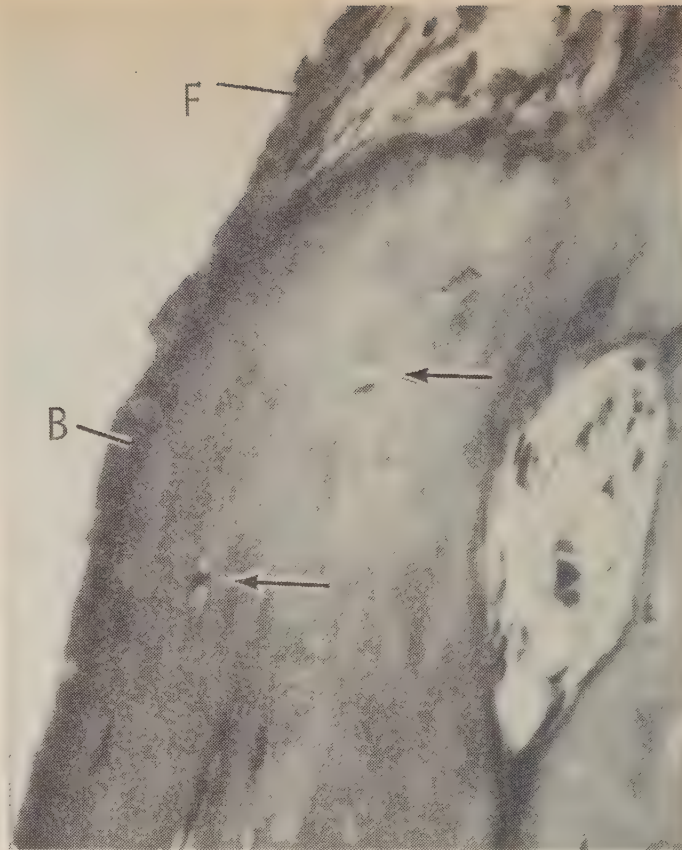


Fig 6 Higher magnification of area in Figure 5 showing bone (B) and fibrous connective tissue (F) in contact with resin. Note osteocytes in bone (arrows). H.E., x 850.

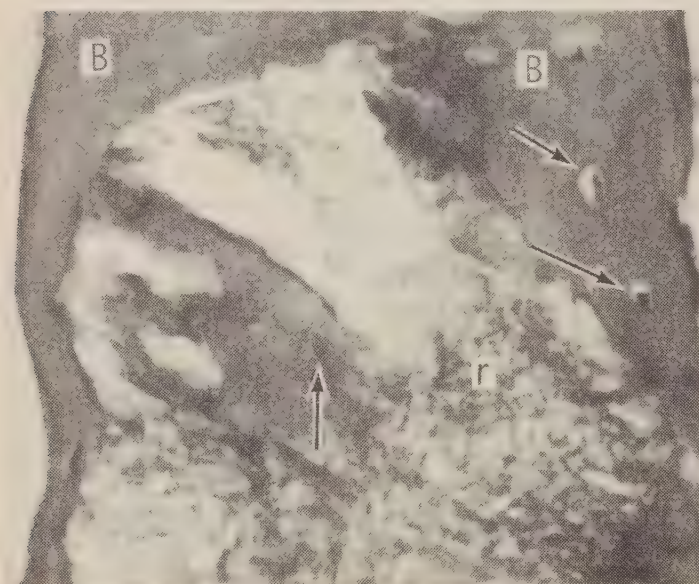


Fig 7 Higher magnification of area in Figure 6 showing resin (r) surrounded by bone (B). Note osteocytes in bone (arrows). H.E., x 850.



Fig 8 Clinically successful maxillary and mandibular implants with one implant exhibiting exposed cement (arrow).

surrounded partly by a fibrous capsule and partly by bone (Fig 5, 6). Resin was occasionally found between bone trabeculae (Fig 7), suggesting that the implant was locked in place. Where resin lay in direct contact with bone the lacunae were seen to be occupied by osteocytes (Fig 6, 7). After a 10 month observation period three of the five implants in the surviving dogs demonstrated slight mobility and exposure of cement (Fig 8). The remaining two implants were firm.

## Discussion

The results from the successfully retained implants in this series encourage optimism in the concept of cement stabilization, but it is evident that correct surgical technique is crucial for success. This stricture can be met by minimal trauma, socket debridement, de-cortication where necessary, adequate mucosal approximation, controlled haemorrhage, limitation of the cement to the confines of the sockets and correct design of implant to develop positive pressure during cementation (Fig 9).



Only implants stabilized with acrylic cements have so far been examined histologically. The presence of numerous osteoclasts on the surface of bone in the vicinity of the loose implant suggests that the bone was actively being resorbed three months after operation. There were no osteoclasts on the surface of bone adjacent to firm implants. This observation, together with the finding that osteocytes were present in bone in contact with the resin, suggests that where the implant technique was correctly carried out the resin and bone were compatible, at least in the short term. The observation that the firm implants were surrounded by, and in contact with, both bone and fibrous connective tissue can be explained by the surgical technique. Packing of the resin into the decorticated socket would have brought it into contact with bone and marrow. Cells of the marrow could then be expected to have differentiated into fibroblasts and to have laid down a fibrous capsule around the adjacent resin.

A more extensive long-term investigation of the value of cementing dental implants into bone is justified by the short-term preliminary clinical and histologic observations recorded in this article.

## Summary

A review of the literature has revealed that metal implants are unlikely to be clinically successful in the long term. The successful use of cements to secure orthopaedic prostheses suggests the feasibility of adopting this approach for dental prosthetic replacements. A preliminary clinical and histologic study of cementing intraosseous dental implants has produced encouraging results.

This paper was presented at meetings of the Canadian Academy of Prosthodontics in Ottawa, September 1971, and of the International Association for Dental Research in Las Vegas, March 1972.

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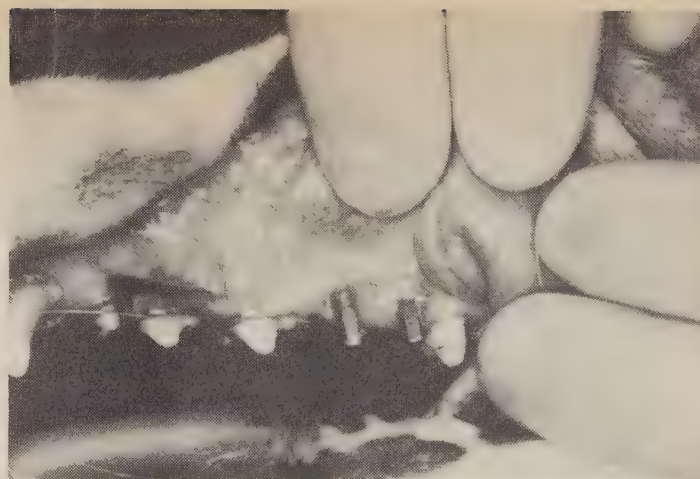


Fig 9 Clinically successful maxillary implants.

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## **Ionized calcium concentration in saliva and its relationship to dental disease**

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*Ionized calcium was measured in resting parotid and whole stimulated saliva using an ion specific electrode. A positive correlation was found between DMFS index greater than 10 and increased resting parotid ionized calcium. A similar relationship was found for increased salivary carbon dioxide tension. No correlation was found between DMFS index and stimulated saliva ionized calcium or carbon dioxide tension. Patients with active periodontal involvement had increased production of ionized calcium in stimulated saliva when compared with normals.*

*On a mesuré, à l'aide d'une électrode spéciale, la quantité de calcium ionisé dans la salive parotidienne et la salive entière obtenue après stimulation chez des sujets de 18 à 55 ans. Le résultat a donné une corrélation positive entre l'indice CAOS plus élevé que 10 et l'accroissement de calcium ionisé dans la salive parotidienne. Une relation similaire a été observée pour l'accroissement de la tension de gaz carbonique salivaire. L'on n'a pas constaté de corrélation entre l'indice CAOS et le calcium ionisé de la salive stimulée, non plus que la tension de gaz carbonique. Par ailleurs la salive entière des personnes atteintes d'affections périodentaires présentait une plus grande concentration de calcium ionisé.*

Ionized calcium in saliva is an important moiety for the maintenance of tooth enamel. McLean and Bloom<sup>1</sup> recognized this relationship for the maintenance of apatite in bone. A lack of a simple method for measurement of ionized calcium in saliva has held back investigation of its possible role in dental disease. Most frequently a metal ion complex measurement, murexide, has been employed, but this requires separation of protein from saliva before analysis and hence does not lend itself to studies of biological fluids. The development of an ion specific electrode system allows measurement of salivary ionized calcium activity.

Plaque is probably the major factor in dental caries and its composition may be influenced by the ionized calcium activity (or concentration) in saliva. If a relationship between caries, plaque or calculus, and ionized calcium exists, it might be found by measuring "resting" saliva ionized calcium, as this represents the usual oral milieu.<sup>2</sup>

We measured calcium ion activity in two types of saliva: parotid resting and whole stimulated. These values were correlated with an assessment of caries present and the degree of periodontal involvement.

### **Methods**

Saliva was collected from randomly selected adults, ranging in age from 18 to 55 years, who were attending a dental clinic. Two types of saliva were obtained:

**Unstimulated parotid saliva (resting saliva)** — Using a Carlson-Crittenden device as modified by Shannon et al<sup>3</sup> resting saliva was collected through a short polyethylene tube into a disposable tuberculin syringe. Care was taken to prevent air entering the system. Collection was carried out for one hour maximally or until 2 ml were obtained (whichever occurred first). Timing allowed accurate measurement of flow rate.

**Stimulated saliva** — Stimulated saliva was obtained by having the subject chew a strip of parafilm for five



Measured values for ionized calcium in patients studied

Table 1

| Subject | Ionized calcium mM/L |                     | DMFS      |
|---------|----------------------|---------------------|-----------|
|         | Stimulated saliva    | Unstimulated saliva |           |
| 1       | 0.50                 | 1.15                | 54        |
| 2       | 0.48                 | 0.36                | 0         |
| 3       | 0.67                 | 1.02                | 55        |
| 4       | 0.55                 | 1.15                | 54        |
| 5       | 0.55                 | 1.17                | 59        |
| 6       | 0.48                 | 0.61                | 8         |
| 7       | 0.98                 | 0.51                | 3         |
| 8       | 0.66                 | 0.70                | 5         |
| 9       | 0.51                 | 0.58                | 4         |
| 10      | 0.80                 | 0.98                | 20        |
| 11      | 0.65                 | 0.90                | 30        |
| 12      | 0.82                 | 1.20                | 40        |
| 13      | 1.10                 |                     | 69        |
| 14      | 0.62                 |                     | 54        |
| 15      | 0.60                 |                     | 30        |
| 16      | 0.67                 |                     | 34        |
| 17      | 0.76                 |                     | 50        |
| Mean    | 0.67                 | DMFS > 10           | DMFS < 10 |
| SEM     | ± 0.20               | = 1.11              | = 0.55    |
|         |                      | ± 0.09              | ± 0.13    |
|         |                      | P < 0.001           |           |

minutes. Patients were put in a head-down position to prevent them from swallowing their accumulated saliva. An aliquot was obtained by collecting 1 ml into a syringe from the mucolingual folds. The patients then donated their saliva into a graduated beaker from which flow rate was calculated.

**Measurements** — Carbon dioxide tension (PCO<sub>2</sub>) was measured as soon as the collection was completed. The measurement was made using a Radiometer pH meter (type pH M4C) equipped with a PCO<sub>2</sub> electrode (type E5036). The electrode was calibrated using solutions equilibrated with CO<sub>2</sub> in air of known concentration. As bicarbonate is the principal buffer in saliva, measurement of PCO<sub>2</sub> reflects salivary pH.

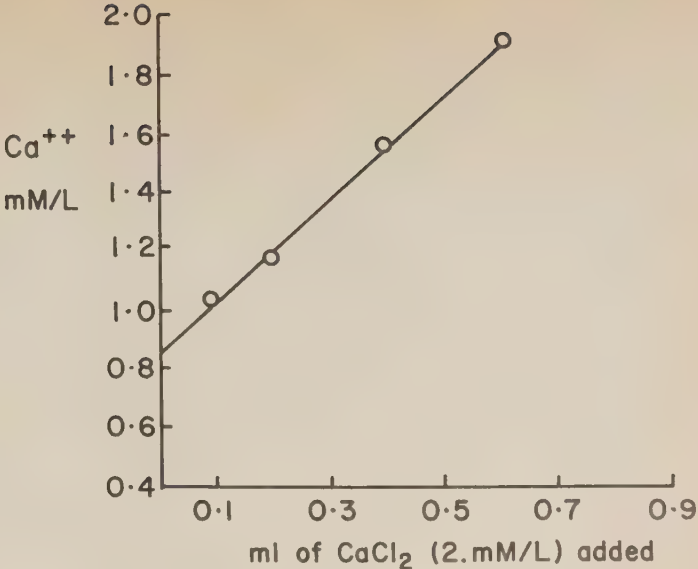


Fig 1 The effect of adding calcium chloride to stimulated whole saliva. The saliva was kept equilibrated with 5 per cent carbon dioxide in air and 0.1 ml of 2mM/L of calcium chloride was added serially, at constant pH (pH = 7.053 ± 0.1) and PCO<sub>2</sub> (PCO<sub>2</sub> = 52).

Analysis of salivary ionized calcium followed the procedure used for serum described by Moore.<sup>4</sup> Our ion exchange electrode system (Orion 92-20) was modified by replacement of the reference electrode with one with a large surface area. This increased stability of the system and enhanced the response time. As the system was closed (care was taken to prevent the sample from being exposed to air) the ionized calcium activity measured was at the same PCO<sub>2</sub> as was present in the mouth. Electrode potential was recorded, using a Cary (401) vibrating reed electrometer. Each measure of ion activity in saliva was preceded and followed by measurement of activity in standard Ca<sup>++</sup> ion solutions in normal saline. The electrode system was relatively insensitive to anions, chelates of calcium and sodium in concentrations present in biological fluids.<sup>5</sup> It was considered es-

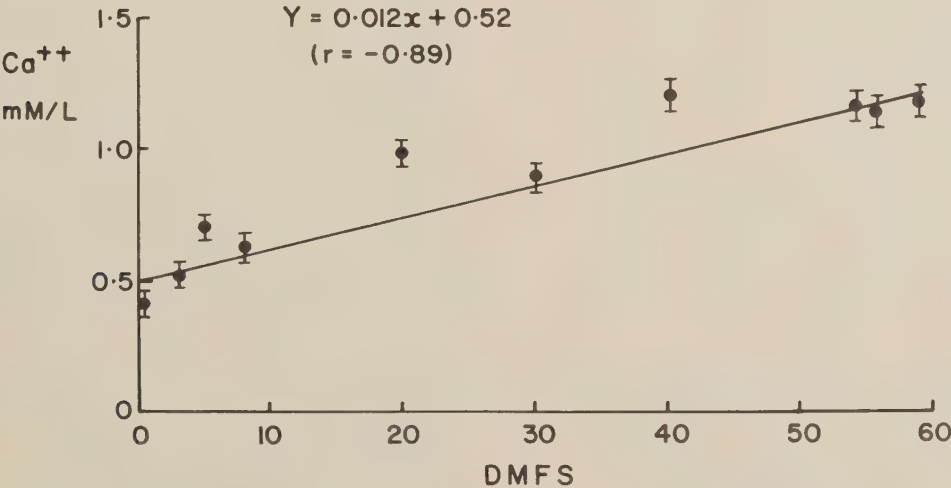


Fig 2 Relationship between ionized calcium in resting parotid saliva and the DMFS found in 10 patients. Vertical bars represent ± 2 SEM. A line joining the means has the equation y = 0.012x + 0.52 (r = -0.89).



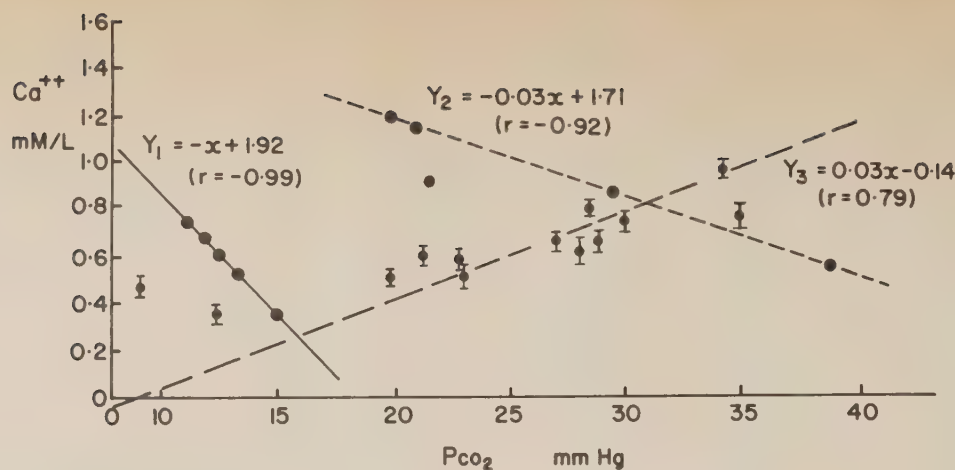


Fig 3 Relationship between ionized calcium and  $PCO_2$  in stimulated whole saliva for 13 patients (vertical bars with dots) and resting parotid saliva for two groups of patients. Resting parotid saliva results are plotted as solid dots. The line  $y_1 = -x + 1.92$  ( $r = -0.99$ ) shows results from patients with low caries ( $<10$  DMFS) and the line  $y_2 = -0.03x + 1.71$  ( $r = -0.92$ ) patients with high caries ( $>10$  DMFS). Vertical bars indicate  $\pm 2$  SEM.

essential to collect and measure salivary samples under anaerobic conditions, as changes in  $CO_2$  tension would alter pH and through this mechanism the level of ionized calcium.

**Patient selection** — On the basis of dental examination patients were divided into three groups: group 1 had a DMFS index<sup>6</sup> of less than 10; group 2 had a DMFS of more than 10. Patients in groups 1 and 2 had been treated by the dental clinic and had achieved normal dental health (pale pink to pink gingiva, palpation with a periodontal probe did not provoke bleeding of the gingiva, and no periodontal pockets were present).

Group 3 was composed of a small number of patients with some active form of periodontal involvement, as diagnosed by the Department of Periodontology at the dental clinic, and who were to undergo treatment. These patients had severe inflammation (red

or bluish-red gingiva, a periodontal probe provoked bleeding, and periodontal pockets greater than 4 mm were present).

Measurements on saliva were made without knowledge of the patients' dental assessment.

## Results

The sensitivity of the electrode to ionized calcium in saliva was determined by adding 0.1 ml of a 2mM/L  $CaCl_2$  solution to saliva, the pH being held constant. As is seen in Figure 1, a linear rise in measured ionized calcium was observed. The slope is less than 1, indicating that some complexing was occurring.

The values for ionized calcium in resting and stimulated saliva are listed in Table 1, and are within the range reported by McCann.<sup>7</sup>

**Resting parotid saliva** — The measured ionized calcium concentration in resting parotid saliva is plotted against the DMFS index in Figure 2. A line joining the points has the equation  $y = 0.012x + 0.52$  and the  $r$  value is  $-0.89$ . There appears to be a significant trend that patients with a DMFS value of less than 10 have a lower salivary ionized calcium ( $P < 0.001$ ) than those with a DMFS value greater than 10. In Figure 3, using the same samples as in Figure 2, carbon dioxide tensions as measured are plotted; two lines can be drawn to represent the two patient groups,  $y_1 = -x + 1.92$  ( $r = -0.99$ ) for DMFS  $<10$ , and  $y_2 = -0.03x + 1.71$  ( $r = -0.92$ ) for DMFS  $>10$ . There is no overlap of the two groups, with separation being equally good for  $CO_2$  tension in saliva and for ionized calcium.

**Stimulated saliva** — Measurement of ionized calcium in stimulated saliva did not correlate with DMFS. The relationship to  $CO_2$  tension is shown in Figure 3. No specific relationship between  $CO_2$  tension and DMFS could be found. The stimulated saliva calcium values were generally highest in those patients with an elevated salivary  $CO_2$  tension. The points can be described by the line  $y = 0.03x - 0.14$  ( $r = 0.79$ ).

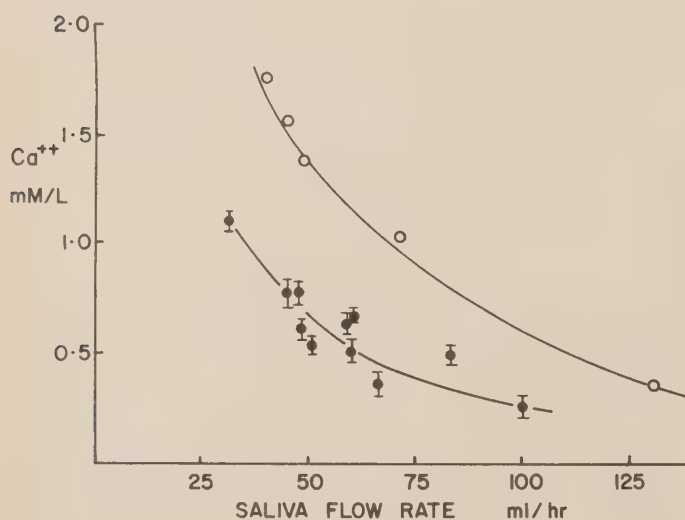


Fig 4 Relationship between ionized calcium in stimulated whole saliva from normal patients (solid dots), patients with active periodontal disease (open circles) and stimulated salivary flow rate. Vertical bars with dots indicate  $\pm 2$  SEM.



In Figure 4 the stimulated salivary ionized calcium concentration is shown to increase with increased flow rate. Patients with evidence of active periodontal involvement were found to have a similar relationship between ionized calcium and flow, but the ionized calcium concentration was found to be higher at each rate of flow.

## Discussion

Using a calcium sensitive electrode, we have been able to measure the concentration of ionized calcium in resting saliva from the parotid gland and whole stimulated saliva. The concentrations measured are well within the range previously reported by McCann.<sup>7</sup> We have also established that the electrode is sensitive to changes in ionized calcium.

The DMFS index was used as a measure of susceptibility to caries. Leung<sup>8</sup> has indicated the hazards of this assumption, in that the caries process tends to be discontinuous in character. However, our results indicate that a distinct separation is possible using the index, therefore in part validating our assumption. As the bicarbonate system is the major saliva buffer<sup>9</sup> and follows the Henderson Hasselbach equation, measurement of CO<sub>2</sub> tension will reflect pH.

The relationship of ionized calcium in saliva and dental enamel to pH has been measured by Dulce and Hardel.<sup>10</sup> They determined that with a fall in pH ionized calcium concentration increased and the coefficient of activity, as measured using an electrode, was always lower in enamel. This suggests a constant gradient from saliva to enamel for ionized calcium. The gradient should act to reverse the tendency of apatite to be solubilized by acid according to the formula:  $\text{Ca}_{10}(\text{PO}_4)_6(\text{OH})_2 + 8\text{H}^+ \rightleftharpoons 10\text{Ca}^{++} + 6\text{HPO}_4^{--} + 2\text{H}_2\text{O}$  as proposed by Gray et al.<sup>11</sup> Our data indicate that the ionized calcium concentration was highest in those patients with the highest DMFS index. This suggests that the carious process is not related to lack of available calcium to form apatite.

Amdur<sup>12</sup> has proposed that nucleating protein material is present in parotid saliva which may coat the tooth and act as an interfacing material to complex calcium and promote maintenance of apatite at the enamel surface. Such a material might also be responsible for complexing the calcium in saliva. The elevated ionized calcium found in the saliva of patients with a high DMFS index could reflect a deficiency of nucleating protein in saliva. An alternative explanation may be found in the recent work of Barker et al.<sup>13</sup> who report that certain compounds, such as tartaric acid, citric acid and trace metals, can interfere with calcification of cartilage. These materials at critical concentrations result in colloid formation with inhibition of apatite formation. Such materials may be present in saliva and interfere in the maintenance of the dental structure. The ionized calcium available in saliva would therefore not participate in enamel formation.

Our observation that a correlation of an elevated DMFS index with increased CO<sub>2</sub> tension in resting parotid saliva may also have a bearing on the carious process. Ericsson<sup>14</sup> has shown that carbamate formation can occur at the surface of the tooth with carbamate exchange for phosphate. This will increase the solubility of enamel apatite. Bicarbonate secretion is thought to be an active process increasing with increasing sa-

liva flow.<sup>15</sup> The increase in CO<sub>2</sub> may be secondary to mechanical problems associated with dental abnormality and may represent an additive factor in the caries process.

Our observations of an increase in ionized calcium in whole stimulated saliva in patients with active periodontal involvement is of interest. Kaslick et al.<sup>16</sup> observed a significant increase in total calcium in the gingival fluid of patients with inflamed gingiva. Our observations suggest that associated with the inflammatory process there is an increased output of calcium at all flow rates. This may reflect local effects of inflammation or the possibility of some unknown signalling systems between the mouth and salivary glands which cause an increased output of calcium associated with inflammation.

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## Tissue adhesives in dentistry: A review

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*Studies have been undertaken on the use of cyanoacrylates as tissue adhesives. Two of their members, butyl and isobutyl cyanoacrylate, have been selected for use in man. These adhesives can be used as surface dressings and act as haemostatic and bacteriostatic agents, and they are effective dressings following various types of oral surgical procedures.*

*Des études sont actuellement en cours sur l'utilisation des cyanoacrylates comme adhésifs sur les tissus. Deux substances de cette famille, le butyl et l'isobutyl cyanoacrylate, ont été choisies pour être utilisées chez l'homme. Ces substances adhésives peuvent être employées pour les pansements de surface. Elles agissent aussi comme agents hémostatiques et bactériostatiques et constituent des pansements efficaces pouvant être appliqués à la suite de divers types d'interventions chirurgicales dentaires.*

A family of chemical substances with a general formula of  $\text{CH}_2=\text{C}(\text{CN})\text{-COOR}$  is known to have the ability to adhere to moist living tissues.<sup>1</sup> Methyl-2 cyanoacrylate is the most widely known of these compounds, and a number of studies on its tissue receptivity have been reported.<sup>2-4</sup> There is general agreement that methyl cyanoacrylate produces morbid necrosis and oedema and is not well tolerated by the tissue. Other cyanoacrylates, such as butyl, isobutyl, ethyl, propyl, hexyl, heptyl and octyl cyanoacrylates are superior to methyl cyanoacrylate. Animal studies<sup>5-16</sup> have revealed the following points about these materials:

1. When sprayed upon two opposing, wet, living tissue surfaces, they have the ability to cement them in place.

2. They are capable of producing immediate, permanent haemostasis (Fig 1).

3. They are partly phagocytosed locally and can be seen in the foreign body giant-cells (Fig 2). Some of the adhesive is sequestered from the incision sites (Fig 3).

4. They are characterized by minimal tissue necrosis, abscess formation and acute inflammation (Fig 4).

5. Healed areas following the use of adhesives are indistinguishable from those where silk sutures are used.

6. When applied on extraction wounds they reduce secondary inflammation and oedema (Fig 5, 6).

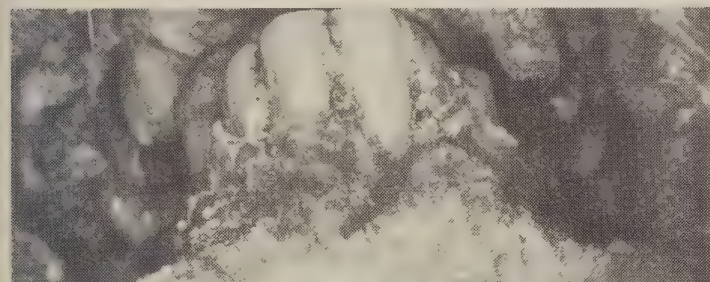
7. When used as a dressing on a bleeding dental pulp they not only act as haemostatic agents (Fig 7), but also preserve the integrity of that organ (Fig 8).

8. When applied only as a surface dressing on oral soft tissues they are completely desquamated and leave a well healed oral mucous membrane. No residual material remains at the site of application.





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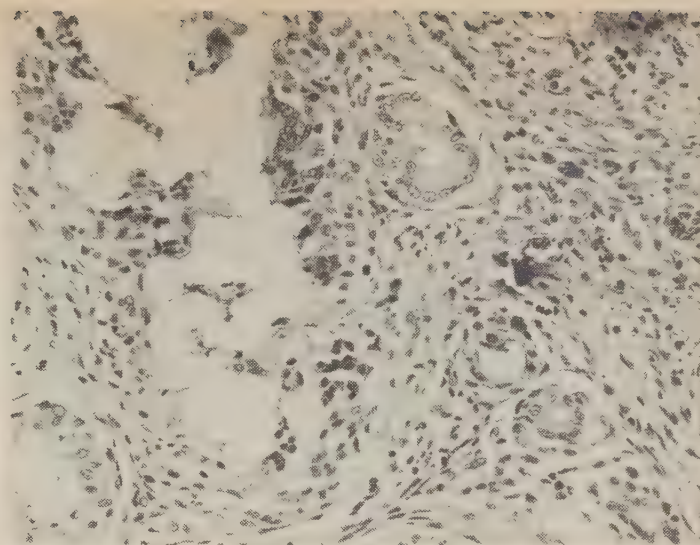
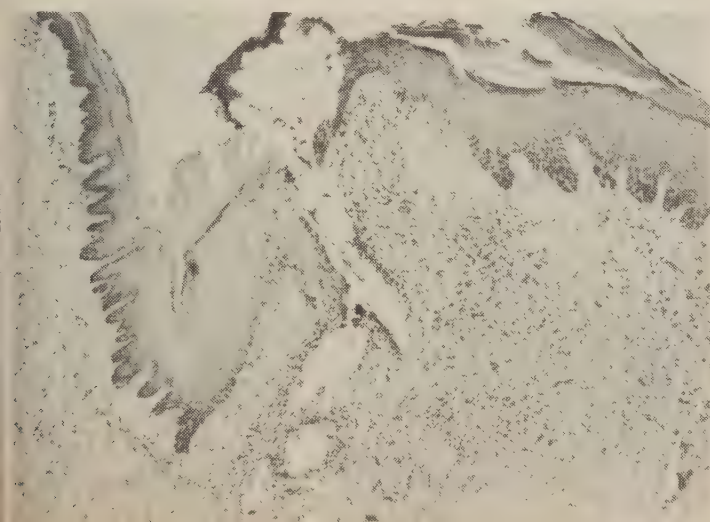
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Fig 1 A, an area of mucogingival reflection on the labial side of the mandible in a monkey. B, the same area after spraying with isobutyl cyanoacrylate.

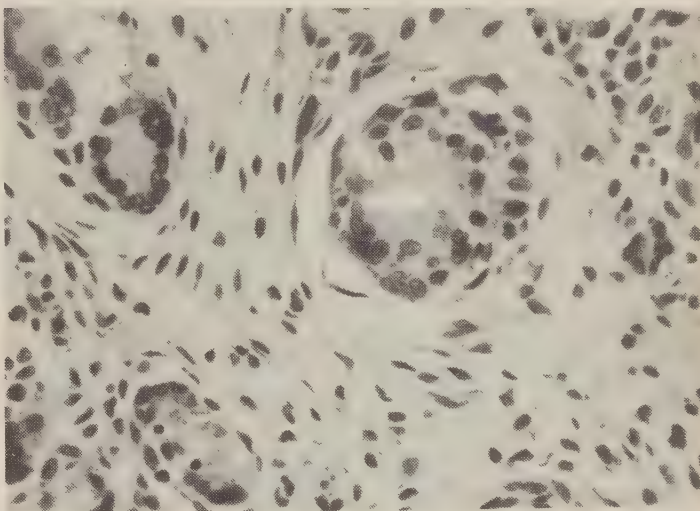
Butyl, isobutyl, hexyl, heptyl and octyl cyanoacrylates have similar tissue responses. However, the physical properties of butyl and isobutyl cyanoacrylate are apparently more favourable.

Use of almost 36 times the human dose of butyl cyanoacrylate as a surface application on oral mucosa of monkeys and 900 times that dose on the oral mucosa of rats produced no morphologically deleterious effect on the animals. Multiple surface applications on the oral mucosa in four monkeys and follow-

Fig 3 Cyanoacrylate in a portion of the healing tongue. Near the surface of the epithelium a portion of the cyanoacrylate is undergoing sequestration. H.E., x 60.



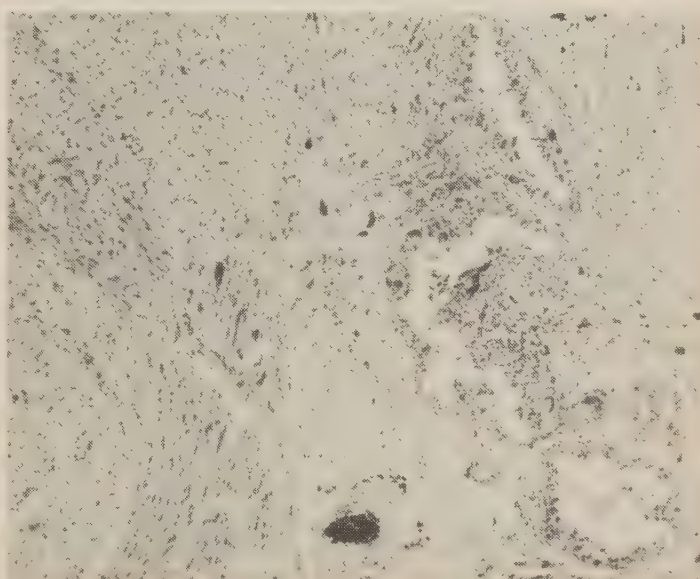
A



B

Fig 2 A, cyanoacrylate in the deep tissues of the tongue. B, cyanoacrylate can be seen within the multinucleated giant-cells. H.E., Fig 2A x 130. Fig 2B x 300.

Fig 4 Cyanoacrylate in the deep tissues of the tongue. The material is not surrounded by an area of necrosis. H.E., x 60.





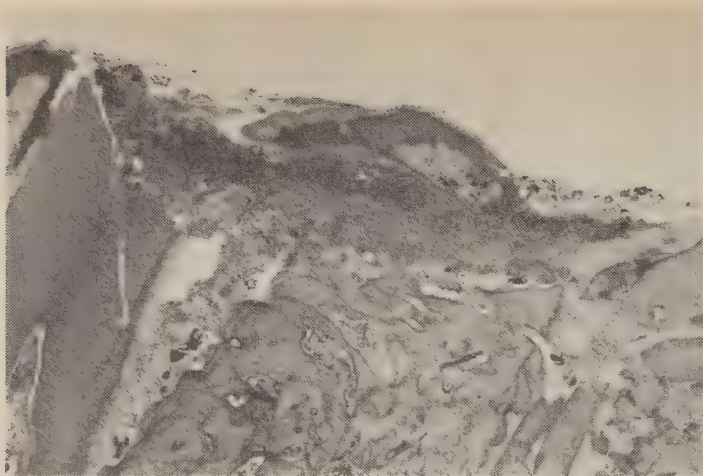


Fig 5 An extraction wound which is not covered by the adhesive. Note the large amount of necrotic tissue.

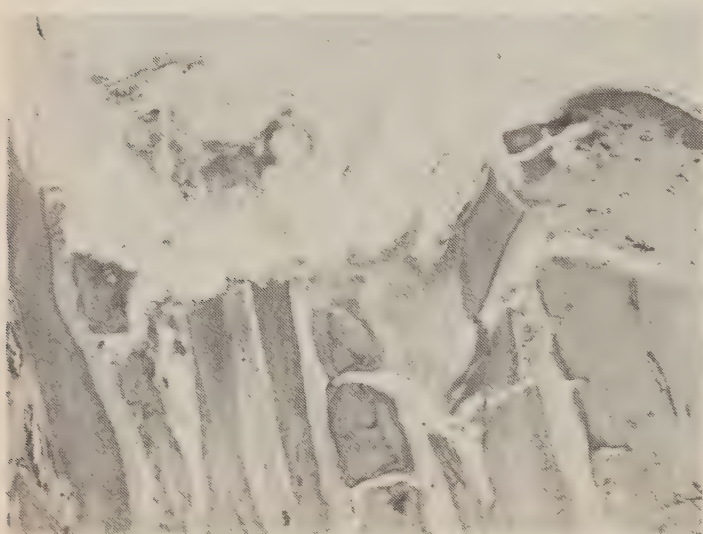
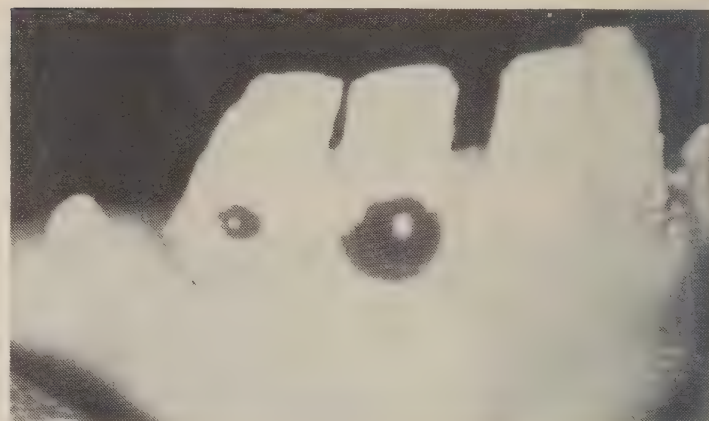
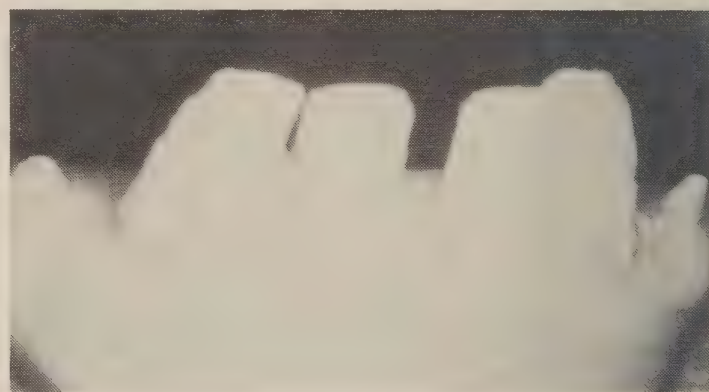


Fig 6 An extraction wound covered by a layer of the adhesive. In these cases the socket heals with far less inflammation and oedema than when it is left exposed to the oral fluids. H.E., x 40.

treatment of more than 500 patients over a period of four and a half years. It has been applied in more than 1,050 applications without any clinical or histologic evidence of local or general undesirable reactions. Furthermore, clinical follow-up and patient question-



A



B

Fig 7 A, two lower teeth in a miniature swine which have been surgically exposed. The bleeding is from the dental pulp. B, immediate haemostasis after the teeth were sprayed with the adhesive.

up of up to four years failed to show any evidence of pathologic changes.

All cyanoacrylates inhibited the growth of certain oral bacteria. Spray of the butyl and isobutyl cyanoacrylate did not stimulate or promote the growth of underlying anaerobic bacteria.

Spray of the isobutyl cyanoacrylate with air at pressures of up to 30 psi in rats did not lead to aspiration of the material. Histologic study of the major body organs in test animals did not show any morphologic evidence of pathologic changes.

### Application in man

Isobutyl cyanoacrylate is currently being used as a surface dressing after soft tissue surgery of the oral cavity in man.<sup>17-21</sup> It has also been tested in pulp capping and as a component of a filling material. This material has now been used experimentally in the

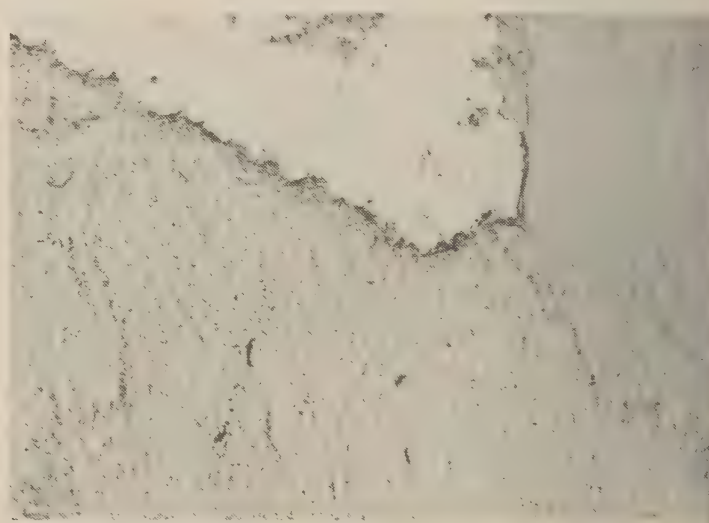


Fig 8 Histologic section through a tooth in which the pulp was covered with a layer of cyanoacrylate. The pulp tissue has remained vital. H.E., x 60.



ing have not revealed any evidence of delayed systemic effects which may be attributed to its topical application.

Butyl and isobutyl cyanoacrylates have been used in man in the following procedures:

**Gingival surgery**—Conventional periodontal dressings used after a gingivectomy are bulky and difficult to retain. They also retract on hardening, they favour the retention of saliva and food debris and promote the formation of exuberant granulation tissue (Fig 9). Isobutyl cyanoacrylate seems preferable as a periodontal dressing. The method of application is simple. We use disposable aerosol units. Alternatively, a bottle containing the material is attached to the air syringe of the dental unit (Fig 10). The patient's eyes are covered with a towel and he is instructed to hold his breath momentarily while the surgical site is sprayed. Each application takes about three seconds. On application of the spray the bleeding stops im-



Fig 9 A conventional type of periodontal pack used after gingival surgery.

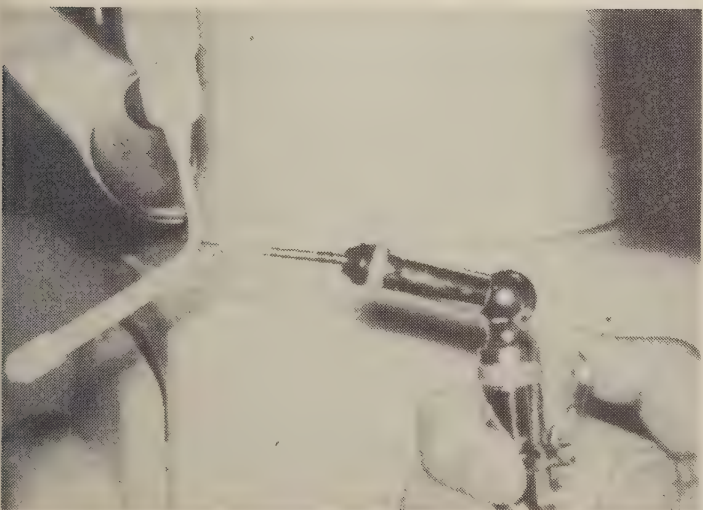
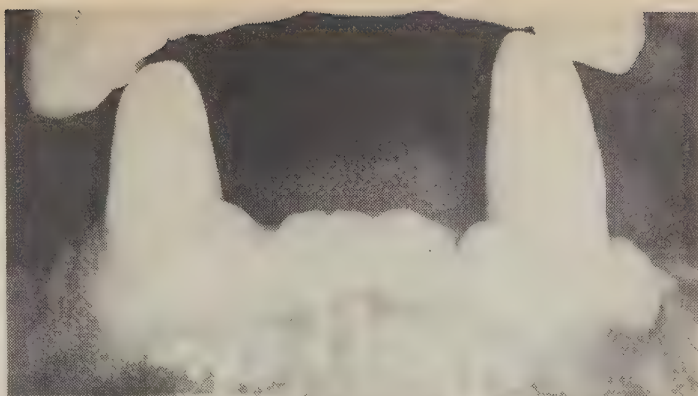
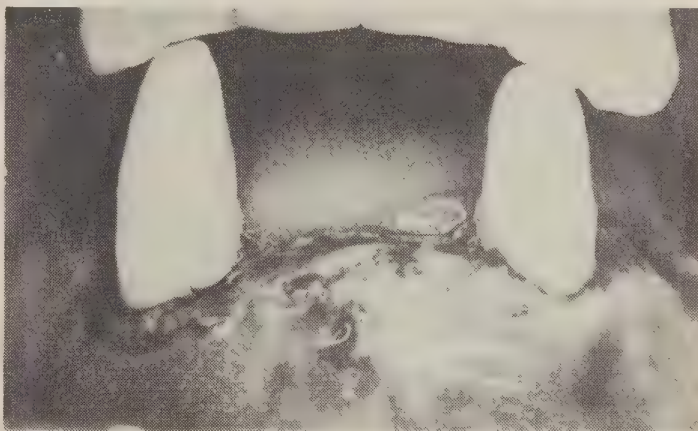


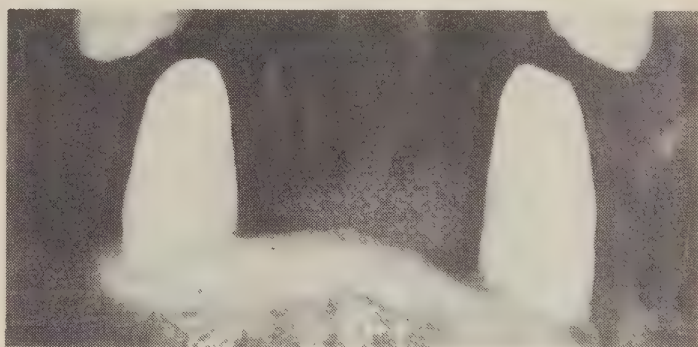
Fig 10 Tissue adhesives in periodontal surgery. The adhesive is sprayed by using the air syringe on a dental unit.



A



B



C

Fig 11 Tissue adhesives in periodontal surgery. A, lower anterior portion of the mouth prior to surgery. B, the same area after postoperative spraying with adhesive. C, the site has healed.

mediately (Fig 11, 12). If necessary, additional material can be sprayed on the area. The patient is instructed not to brush the region and is re-examined four to seven days later. At this time additional spray can be applied to the old dressing.

Healing occurs within seven to 10 days and is marked by less pain and oedema than other methods of dressing (Fig 11, 12). Clinical and histologic studies reveal no evidence of residual material or other pathologic change at the operative sites.

This method of wound dressing is much faster than the conventional methods. The healing time is reduced by about four days and granulation tissue is less noticeable under the cyanoacrylate dressing.

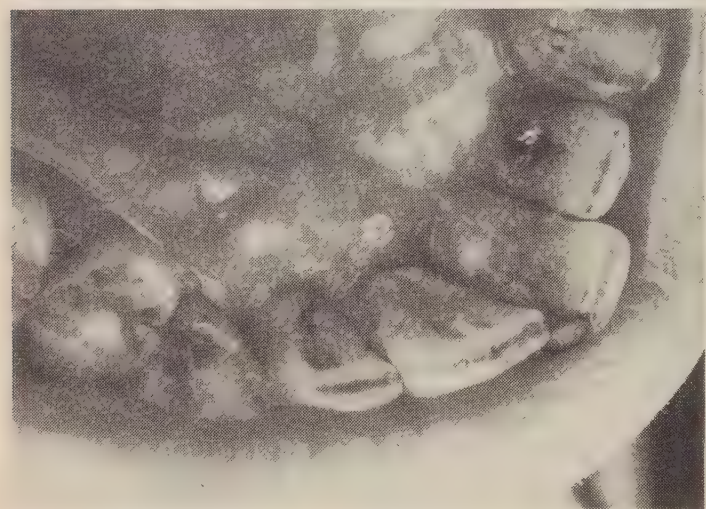




A



B



C

Fig 12 Tissue adhesives in periodontal surgery. A, palatal area of the maxilla immediately after surgery. B, same area after spraying with the adhesive. C, healed surgical site a few days later.

Isobutyl cyanoacrylate can be applied as a routine dressing to mucoperiosteal flaps, which are used in periodontal and endodontic therapy (Fig 13). Although in certain instances the application is made without the use of sutures, usually one or more retaining sutures are placed in strategic regions to retain the flap.

The area is then sprayed with isobutyl cyanoacrylate. The results are similar to those obtained after a gingivectomy. The use of this adhesive in "flap" surgery saves considerable time and is more comfortable for the patient.

An alternative method of applying isobutyl cyanoacrylate is to deposit a few drops of adhesive on an appropriate piece of sterile fine mesh gauze and apply the soaked gauze to the operative site. It adheres quickly and firmly and serves as an excellent dressing. This method has an added advantage in that there is no need to protect the patient's eyes or throat and there is no chance of the material becoming embedded in deeper tissues.

**Biopsy sites and minor surgical procedures**—Isobutyl cyanoacrylate can be sprayed on biopsy sites on the palate, interdental papillae, soft palate, tongue, lip, cheek and floor of the mouth (Fig 14). In many of these areas, it is used as a protective covering on sutured tissues, but on the palate where sutures cannot be placed application of isobutyl cyanoacrylate is the only procedure available to the surgeon. Healing under the sprayed region is uncomplicated.

Cyanoacrylate spray is also used after the excision of inflammatory papillary hyperplasia, fraenectomy, and after removal of various gingival tumours. In these patients healing is quick and uncomplicated. The adhesive is retained on the fixed or relatively immovable portions of the oral mucosa (the palate, alveolar ridge, gingiva and posterior two-thirds of the dorsum of the tongue) until healing is complete; elsewhere (ventral surface of tongue, floor of mouth, cheek and inner surface of the lips), is desquamated within one or two days.

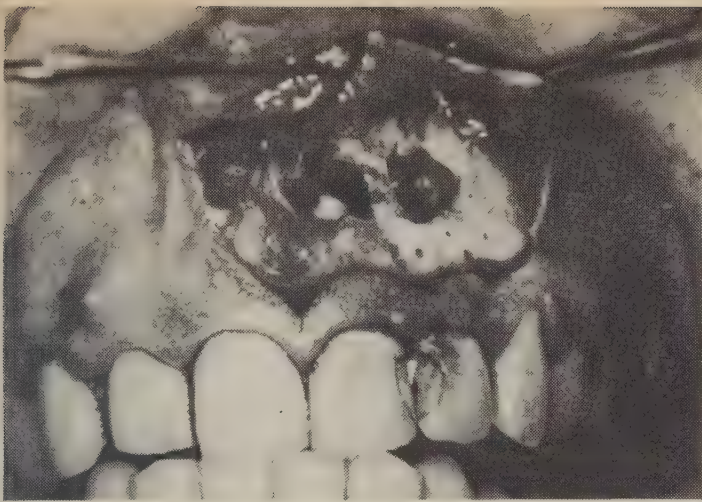
**Extraction sites** — After dental extractions the application of cyanoacrylate as a surface covering on the blood-filled socket prevents secondary inflammation and promotes healing (Fig 15).

**Ulcers**—Since adhesives are easy to apply and can remain on the tissues for up to 10 days, isobutyl cyanoacrylate can be used as a protective covering on ulcerations of necrotizing ulcerative gingivitis, aphthous ulcers, leukaemic ulcers and oral ulcerations caused by methotrexate therapy. Although this material has no curative value, its protective quality is beneficial in the management of oral ulcerations.

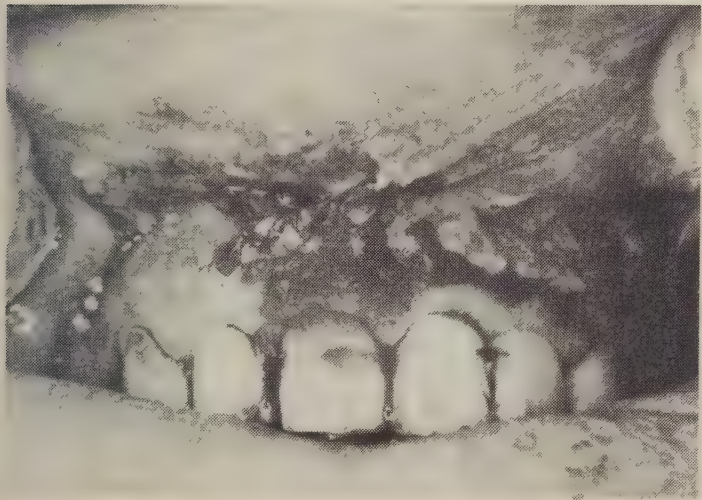
**Pulp capping** — One of the common problems in pulp capping or pulpotomy is persistent haemorrhage which makes the placement of medication difficult or impossible. The application of isobutyl cyanoacrylate to exposed bleeding pulp produces immediate haemostasis. Pulp tissue immediately under the cyanoacrylate retains its vitality, whereas that under calcium hydroxide may show a narrow superficial zone of necrosis. Pulp inflammation under cyanoacrylate appears less severe than under calcium hydroxide. In summary, pulp capping is quicker with isobutyl cyanoacrylate than by conventional methods, and there are the added advantages of immediate haemostasis and formation of a dentine bridge without a necrotic zone.

It has been shown that the calcium ions in calcium hydroxide pulp capping preparations do not partici-





A



B

Fig 13 A, a mucoperiosteal flap on the labial side of the maxilla. B, the flap positioned on bone and retained with the adhesive.

pate in the formation of new dentine.<sup>22</sup> Consequently, the presence of calcium ions in the capping material is not a prerequisite to success. Indeed, isobutyl cyanoacrylate leads to the formation of secondary dentine immediately adjacent to the adhesive material. Given the ease with which it may be applied, together with its haemostatic properties and its biologic receptivity, isobutyl cyanoacrylate promises to be superior to currently used pulp capping materials.

**Free mucosal grafts** — Grafting oral mucosa from one area of the mouth to another is an accepted form of periodontal surgery, but the procedure is time-consuming because each graft must be laboriously sutured to the recipient site. Chemical tissue adhesives are an ideal surgical dressing over such grafts. The graft tissue is removed from the donor site, transferred to the recipient incision and the area sprayed with the isobutyl cyanoacrylate (Fig 16). The donor site is also sprayed. Healing and successful "takes" are far superior than with other methods used in retaining the grafts.

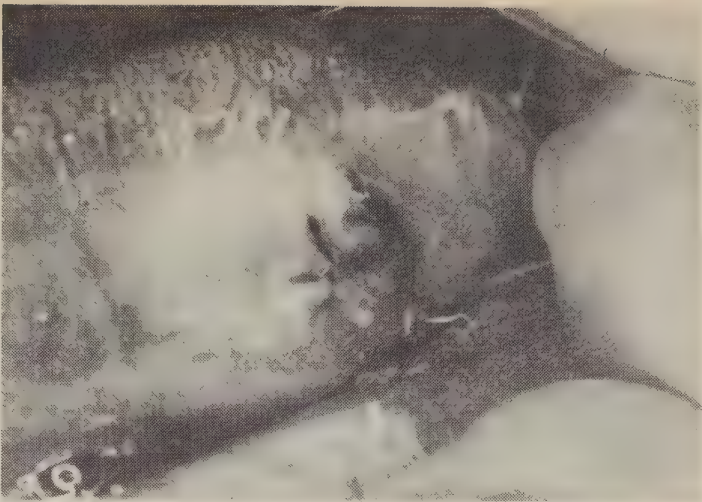


Fig 14 Lateral border of the tongue showing a biopsy site which has been sutured and covered with a layer of the adhesive.

### Summary

Cyanoacrylates have been investigated and two of their members, butyl and isobutyl cyanoacrylate, were selected for use in man. These adhesives can be applied as a surface dressing where they act as haemostatic and bacteriostatic agents. They are very effective dressings following various types of periodontal and oral surgical procedures.

Brigadier General Bhaskar is director of the United States Army Institute of Dental Research, Walter Reed Army Medical Centre, Washington, DC 20012.

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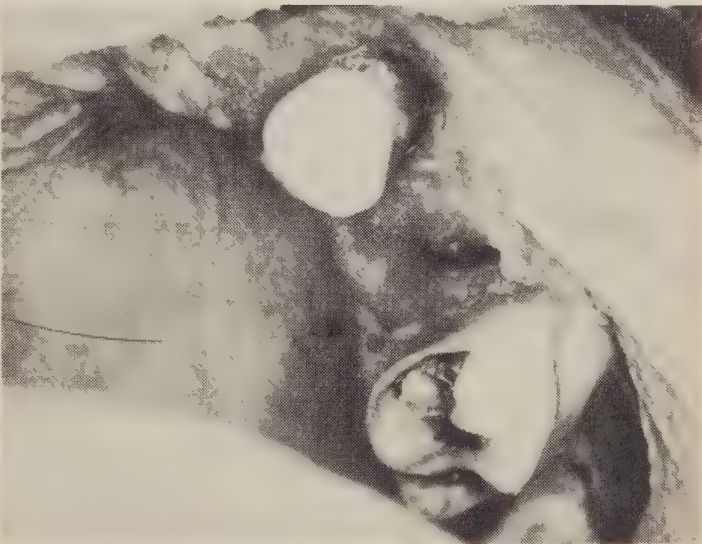
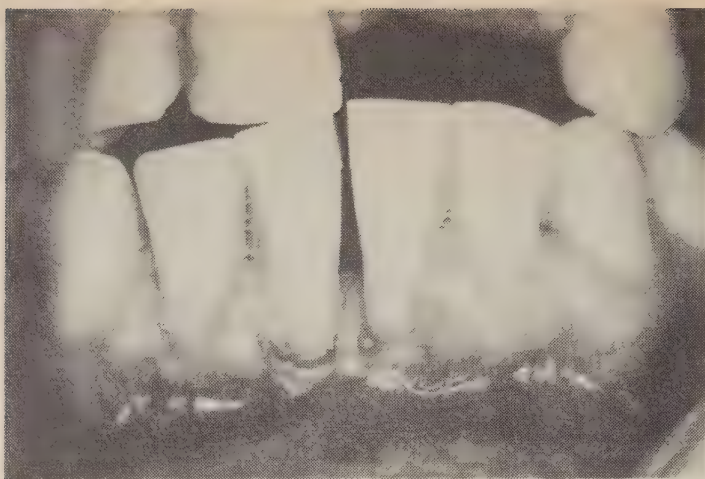


Fig 15 An extraction site covered with the adhesive. Note the absence of haemorrhage.

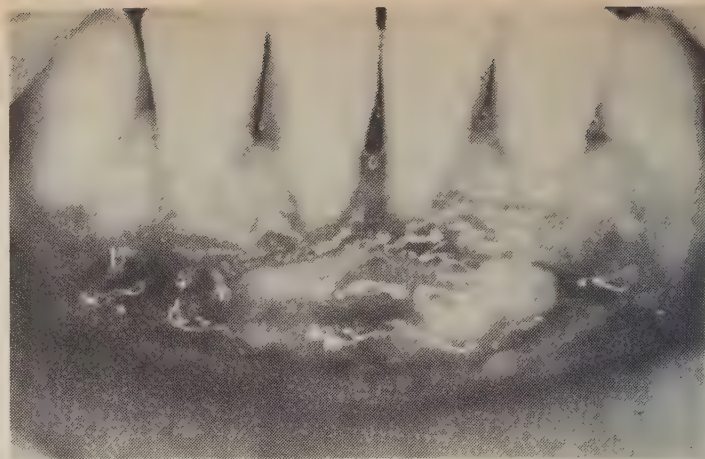




A



B



C

Fig 16 Use of adhesives in free mucosal grafts. A, vestibular area of the anterior part of the mandible. B, same area after positioning a free palatal graft. C, the graft established at the recipient site. The operation was performed without any sutures.

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## Helping dentists to help the people

The starry-eyed visionaries, with all their rhetoric on what's wrong with Canadian dentistry, tend to despise the profession's endeavour in training more dentists and auxiliaries. Why? Because dentists are not dedicated to what the ideologists call the "root causes" of the problem. That is, they don't attempt to supplant evolution with revolution, but simply try to aid their patients and improve service to the public.

Dentists are doing so in growing numbers, digging ever more deeply into their own pockets and donating to the Canadian Fund for Dental Education. Last year they gave the Fund a record-breaking \$31,600, boosting their gifts by 21 per cent over the previous year.

On October 22, this year, the CFDE celebrates the tenth anniversary of its creation, an occasion the Journal salutes with pride and gratitude. There is not a single province of Canada which has failed to benefit from the Fund's activities and its contribution to dental education has been incalculable.

The success with which the Fund's trustees are going about their task has been documented, briefly but impressively, in the Journal: 16 teacher training awards in 1972-73 worth \$60,300 — 33 per cent more than in any previous year; \$20,000 to help launch an inspection and accreditation program for graduate

and postgraduate courses at Canadian dental schools; scholarships and bursaries worth \$3,000 for dental hygienists and dental technicians; \$1,250 to assist in the development of a standardization program for dental materials and devices; and much more besides.

Few governments can lay claim to activities so worthwhile as this. In fact, their view of who deserves aid is curious, to say the least. One decision that must have been sweet music indeed was a recent federal manpower department award of \$25,900 to the Process Church of the Final Judgement (sic), a group that worships Christ and pays homage to "Our Great Lord Satan . . . the Adversary," and runs drop-in centres.

The Canadian Fund for Dental Education shies away from political matters, and it is true that it does not and cannot single-handedly provide solutions to the "root causes" of dental ill-health. The visionaries are right, in their terms, to shun it, to deplore it. Since they tend to view the struggling masses as shock troops for revolution, the CFDE, in its own way, tends to deprive them of this potential fodder.

In the real terms of today, however, no other group does precisely what the CFDE does for dentistry. Good luck in its campaign to raise money among dentists to help dentists help our people.



## Pour aider le dentiste à aider la population

Les visionnaires illuminés qui s'acharnent, à grands renforts de rhétorique, à déblatérer sur ce qu'ils désapprouvent dans le domaine de la dentisterie canadienne ont tendance à mépriser l'initiative de la profession de vouloir former plus de dentistes et plus d'auxiliaires. Pourquoi? D'après ces détracteurs doctrinaires, les chirurgiens dentistes ne se préoccupent pas de considérer les causes profondes du problème. C'est-à-dire qu'ils ne s'attachent pas à supplanter l'évolution par la révolution. Ils se bornent tout simplement à aider leurs patients tout en améliorant les services dispensés au public.

Cette tendance prend des proportions sans cesse grandissantes chez les chirurgiens dentistes et l'on constate qu'ils contribuent des dons personnels de plus en plus généreux au Fonds canadien pour l'enseignement dentaire. L'an dernier, ces contributions ont enrichi le Fonds canadien de \$31,600, un nouveau record représentant une augmentation de 21 pour cent sur celle de l'an dernier.

Le 22 octobre courant, le FCED célèbre le dixième anniversaire de sa fondation. Un événement que le Journal acclame avec gratitude et avec une légitime fierté. En effet, toutes les provinces du pays ont eu l'occasion de profiter, dans des proportions incalculables, de l'activité du Fonds canadien et de ses subventions en faveur de l'enseignement dentaire.

Les succès de l'oeuvre accomplie par les directeurs du Fonds canadien ont été exposés brièvement mais d'une manière impressionnante dans le Journal. Seize bourses pour la formation de professeurs en 1972-73, d'une valeur totale de \$60,300 c'est-à-dire 33 pour cent de plus que le total de l'année précédente. La somme de \$20,000 pour l'inauguration d'un programme d'inspection et de cours de formation reconnus pour les diplômés et les étudiants diplômés

dans les écoles dentaires canadiennes. Des bourses d'étude d'une valeur de \$3,000 aux hygiénistes dentaires et aux techniciens dentaires. La somme de \$1,250 pour aider à défrayer le développement de la normalisation du programme concernant l'équipement et les appareils dentaires. Plusieurs autres projets ont pu ainsi se réaliser.

Très peu de gouvernements peuvent revendiquer des activités aussi valables. En fait, ces derniers se basent sur des critères plus ou moins étranges pour octroyer l'appui de leurs deniers. Considérons la décision tout à fait suave du ministère fédéral de la Main d'oeuvre d'accorder récemment un octroi de \$25,900 à la "Process Church of the Final Judgment" (sic), un groupement consacré au culte du Christ, qui rend aussi hommage à "Satan, notre puissant Seigneur et adversaire". Ce groupement dirige des refuges dans les centres urbains.

Le Fonds canadien pour l'enseignement dentaire a pour principe d'éviter tout ce qui a rapport à la politique et il est parfaitement exact que cet organisme est incapable de résoudre seul les causes profondes de l'état déplorable de la santé dentaire. Les visionnaires ont raison de le fuir et de déplorer son existence. Puisqu'ils ont tendance à considérer les masses combattantes comme des troupes de choc révolutionnaires, il ne fait aucun doute que le FCED les prive de cette pâture virtuelle.

En définitive, considérant la situation actuelle, aucun gouvernement n'accomplit l'oeuvre poursuivie par le FCED pour la dentisterie canadienne. Nous souhaitons que la campagne de souscription poursuivie par cet organisme auprès des chirurgiens dentistes, pour les aider à aider les gens, soit entièrement couronnée de succès.



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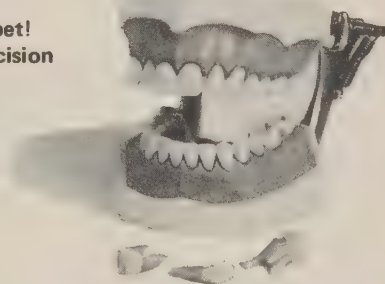


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*The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space. Your participation in this section is invited.*

*Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Vous êtes invités à participer à cette section du Journal.*

## CDA Retirement Savings Plan

Your article on "security" in the July issue contains some very interesting figures, and even more interesting fantasies.

The article states that the CDA retirement plan is a mixture of stocks and bonds for safety. Then it goes on to give a glowing report of the possible yields. While not stated for the first set of examples, the values used for the second set are 3 per cent yield and 8 per cent growth — 11 per cent in all.

If these figures are reasonable, please tell me in which years the funds in question reached these goals, especially those that contained both stocks and bonds.

N. C. Ferguson, DMD  
624 Sixth St  
New Westminster, BC

*This letter was referred to Mr. W. E. Jackson of Canadian Dental Service Plans Inc who administers the CDA Retirement Savings Plan. Mr. Jackson replied as follows:*

Not being an actuary, I am somewhat at a loss to answer Doctor Ferguson's questions. However, the article he refers to was prepared by a "consultant" and in going over the growth of the CDA

common stock fund for the years 1958 to 1968, it appears to me that the examples could be accurate when we also take into consideration the tax saving which is an assumed figure.

In 1958 the unit value of the CDA common stock fund was \$10. In 1968 (a 10 year period) it was \$27.75, and today the unit value is \$29.325. In between those dates there were, quite naturally, deviations but the trend has been a fairly steady upward one.

I am pleased at a new fund which is to be announced shortly. This will be a "guaranteed" interest bearing fund which will allow dentists to either contribute directly if they like the idea of a guarantee, or to roll over their units in the other funds when they assume the market might not be too reliable.

This will be especially valuable to the dentist nearing retirement age who does not wish to be dependent on market conditions at a time when he is forced to buy a pension.

W. E. Jackson  
Administrator  
Canadian Dental Service Plans Inc  
Toronto, Ont

## Custom-fitted mouthguards

As chairman of the Mouthguard Committee of the Ottawa Dental Society, I have prepared a small booklet on how to provide mass custom-fitted athletic mouthguards as economically as possible. Titled *Project Mouthguard*, the booklet gives full details on how to organize a community mouthguard clinic. Copies may be obtained by writing to the undersigned.

George Maroosis, DDS  
PO Box 220  
Hazeldean, Ont  
K0A 2B0

## Le DDS

Depuis la Tour de Babel, depuis la multiplicité des langues, les hommes ont cherché un langage commun pour une meilleure compréhension entre eux.

Dans la lointaine antiquité, le grec était la langue universelle et sous l'Em-

pire romain le latin prédomina. Les scientifiques communiquaient en latin au Moyen-Age et encore aujourd'hui l'Eglise romaine l'emploie comme langue de travail. Ajoutons que beaucoup d'universités caractérisent leurs diplômes par des abréviations latines.

De nos jours, imbus de fierté nationale, les peuples sont jaloux de leur langue. Les académies sont très tenaces; elles défendent farouchement l'intégrité de leur idiome et ne cèdent que par miettes; on reproche même à certaines nations trop de facilité à accepter des termes étrangers dont les nuances ne semblent pas exister chez eux.

Sous le sigle du DDS américain (Doctor of Dental Surgery), plusieurs confrères refusent de s'abriter. Il faut honnêtement reconnaître l'influence des américains dans la discipline dentaire; il faut admettre qu'ils ont été et sont encore des pionniers, des innovateurs. De grands noms ont illustré brillamment notre profession; au hasard, mentionnons Morton, H. Wells, Black.

Il n'en reste pas moins que la chirurgie dentaire est une science universelle qui existait chez les Egyptiens, chez les Grecs, chez les Romains. Cette science n'appartient à aucun pays et ses disciples, fort heureusement, soulagent l'humanité dans les cinq continents.

Il conviendrait donc de délaissier la location servile "Doctor of Dental Surgery" et traduire par une appellation internationale plus juste pour tous.

Le sigle conventionnel DDS ne souffrirait en rien si, au sens américain, on substituait avec beaucoup plus de logique la traduction latine *Doctor Dentariâ Scientiâ*, docteur en science dentaire.

Le même sigle couvrirait toute la science dentaire et perceraient les frontières des pays où on accorde un doctorat ou une licence en science dentaire.

Le DDS (docteur) ou LDS (licencié) deviendrait *Doctor* ou *Lictus Dentariâ Scientiâ* à la satisfaction de tous et sans préjudice pour aucun.

Pour être exécutoire, cette proposition, acceptée par nos associations respectives, devrait être acheminée vers l'organisation Mondiale de la Santé par le biais des universités.

Reconnu officiellement, le DDS deviendrait international et son symbole aurait le même sens partout.

L. P. Robert, DDS  
3430, ave Vendôme  
Montréal, Qué





W. G. McIntosh, DDS

Canadians are becoming increasingly concerned with the spiralling costs of health care. The latest available figures from the Research and Statistics Directorate of the Department of National Health and Welfare provide the following information on expenditures for personal health care:

Expenditures on Personal Health Care (a) Canada 1965-70 in thousands of dollars

| Year | Hospital services | Physicians' services (b) | Dentists' services (b) | Prescribed drugs (c) | Total     |
|------|-------------------|--------------------------|------------------------|----------------------|-----------|
| 1965 | 1,461,916         | 545,056                  | 160,062                | 200,017              | 2,367,051 |
| 1966 | 1,668,768         | 605,200                  | 176,402                | 214,646              | 2,665,016 |
| 1967 | 1,916,296         | 686,189                  | 187,166                | 239,478              | 3,029,129 |
| 1968 | 2,216,404         | 788,089                  | 213,739                | 258,228              | 3,476,460 |
| (d)  |                   |                          |                        |                      |           |
| 1969 | 2,513,111         | 910,000                  | 231,450                | 270,106              | 3,924,667 |
| (d)  |                   |                          |                        |                      |           |
| 1970 | 2,787,000         | 1,029,000                | 269,000                | 301,000              | 4,387,000 |
| (e)  |                   |                          |                        |                      |           |

(a) Excludes certain professional services (such as chiropractors, osteopaths, private nurses, optometrists and podiatrists), eyeglasses and appliances, non-prescribed drugs, public health activities, nursing home care, new construction and education and research outside hospitals  
(b) Excludes full-time hospital staff and those physicians engaged primarily in administration, teaching, research, public health and industrial medicine  
(c) Sold by retail pharmacies only  
(d) Preliminary estimates except data for "physicians' services" for 1968, which are final  
(e) Estimates

According to these statistics, dentistry is responsible for approximately 6 per cent (\$269 million in 1970) of the total cost of personal health care services, an increase of 109 million over the past five years. Should government supported prepaid dentistry become available on a large scale basis, total costs of dental care are expected to rise even more sharply.

My purpose on this page is to inform the dental profession of the apparent contradictions between these known and anticipated large expenditures for

dentistry, certain statements made last June by the Honourable John Munro, Minister of National Health and Welfare, and recent staff changes in the Dental Division of the Department of National Health and Welfare in Ottawa.

In a speech delivered at the annual meeting of the Canadian Medical Association in Montreal, June 14, 1972, Mr. Munro stated:

"... the discussion on the availability and quality and costs of health services that has been going on in government and professional circles and among the public at large for some years, is probably at its highest level."

"... personal health expenditures in this country are among the highest in the world and are continuing to escalate at an alarming rate."

"... I wish now to stress and to restress — that the federal government is not getting out of the health field."

"... it will remain the duty of the federal government to make sure that as the provinces proceed to change their health delivery system, national standards of care and coverage are preserved."

"... I should also mention at this time that the objective of the Department is not continued cooperation with the provinces only. We want to continue, as I am certain the provinces also want to, the close and traditional relationships that we have had with the various professional and health associations which in their respective way represent the providers of health services. I mentioned earlier the contribution which representatives of the various health professions had made to the work of the committee on costs of health services and to subsequent assessment of the recommendations. Increasingly, representatives of the associations and private practitioners are participating in the study of and development of solutions to national health problems. I am most anxious that this trend continue and that in addition we increase the involvement of the consumer. I believe that it is through a

(Continued on page 375)



## The Association

### Staff changes on the Journal

W. G. McIntosh, executive director of the Canadian Dental Association, has announced the appointment of Diane Charter as acting editor. Miss Charter, who joined the Association as news editor in December 1971, succeeds F. H. Compton who resigned as editor and director of communications September 1.

A graduate nurse, Miss Charter has worked in various capacities as a journalist in the health care field for the past nine years. She was formerly editor of Southam's *Hospital Administration in Canada* and a contributing editor to the *Canadian Hospital Journal*.

As part of the realignment of editorial responsibilities, Enid Bazlik has been named editorial secretary. Mrs. Bazlik has worked on the Journal for the past 10 years as secretary to Doctor Compton.

Also announced was the appointment of Alan E. McPhee as production manager.

## Canada and the Provinces

### Report urges health services integration and creation of community health centres

Substantial integration of health services into one system that would make medical, hospital, community, home care and social services readily accessible to the public has been recommended in a report to federal and provincial health ministers.

The report of the Community Health Centre Project recommended establishment of a significant number of community health centres which would help act as catalysts in a new system.

The Community Health Centre Project was headed by J. E. F. Hastings during a one year leave from his post as professor of health administration at the

University of Toronto School of Hygiene. Doctor Hastings was chairman of a 19 member committee that received more than 200 briefs from organizations and individuals, including a submission from the Canadian Dental Association.

The report suggested that community health centres should offer a balanced program of preventive and treatment services, including dental services.

Health centres must not become small hospitals or additional services, the report said, noting that high costs of active treatment hospital care would be reduced only if hospital beds were actually reduced as the emphasis swings to alternative forms of care, including outpatient treatment in health centres, as well as home care and extended care programs.

## International Items

### Australia to host 1973 annual session of FDI

The 61st Annual Session of the Fédération Dentaire Internationale will be held in Sydney, Australia, July 14-20, 1973, and will be organized as a joint meeting with the 20th Australian Dental Congress.

The FDI meeting, during which delegates and observers will attend the sessions of commissions, council and committees, will precede the scientific program. On Sunday, July 15, a combined social program will link the FDI meeting with the Australian Dental Congress.

The scientific session, sponsored jointly by the two groups, will focus on such topics as:

(a) Tissue reaction to dental materials, including pulpal reactions; also periapical tissues and reactions to implants;

(b) Treatment of traumatic injuries to anterior teeth including immediate, intermediate and long term treatment of teeth subjected to varying degrees of injuries; and

(c) Dental research in Australia and its practical applications.

In addition, there will be theme lectures by leading Australian professionals, together with a wide range of table clinics.

This meeting will mark the first time the FDI has held its annual session outside of Europe and the Americas and it will provide delegates with an opportunity to witness the grandeur of Australia and to enjoy the sights of Sydney, the country's largest capital city.

The University of New South Wales, the largest in Australia and situated four miles from the city centre, will serve as headquarters for congress activities.

During the week of the joint meeting there will be a number of unique tours scheduled, including a bush barbeque, to provide visitors with an opportunity to see koalas, kangaroos, wombats and other native animals at a sanctuary. Delegates will also have a chance to be initiated into the mysteries of throwing a boomerang. Pre- and post-congress tours will include the Great Barrier Reef and Ayers Rock, the world's largest monolith, in Central Australia.

Further information regarding registration and program activities can be obtained from the Congress Secretariat, 116 Pacific Highway, North Sydney, NSW 2060, Australia.

## Dental Organizations

### Oral surgeons elect Doctor Mercier

Paul Mercier, Montreal, was elected as president at the recent annual meeting of the Canadian Society of Oral Surgeons in Harrison Hot Springs, BC. He succeeds A. E. Swanson of Vancouver.

Other new CSOS officers are Simon Weinberg, Toronto, president-elect; V. K. Seth, Vancouver, treasurer; and Guy Maranda, Quebec City, secretary. Also





Recipients of Fellowships at the June 5 Montreal convocation of the International College of Dentists are pictured above (left to right): Leon Carpentier, Hamilton, Bermuda; M. A. Kamienski, Scarborough, Ont; J. M. Chamard, Montreal; K. I. Levinson, Toronto; G. K. Clarke, Hamilton, Ont; A. J. Colle, Montreal; J. F. Reid, North Vancouver; Marius Crete, Shawinigan, Que; L. J. Rosen, Montreal; M. J. T. Dohan, Victoria, BC; J. G. Ryan, Vancouver; G. M. Dundass, Westmount, Que; Harry Tregobov, Winnipeg; R. A. Gray, Medicine Hat, Alta; F. T. Wihak, Regina; and P. M. Jackin, Winnipeg.

named to the CSOS Executive Council were F. W. Lovely, Halifax; L. Trudel, Sherbrooke, Que; M. G. Strelloff, Edmonton; and E. Marks, Vancouver.

R. V. Walker of Dallas, Texas, presented major papers on surgical orthodontics, temporomandibular joint problem and maxillofacial trauma. Other clinicians and their topics included:



Paul Mercier

- Paul Luxford, Calgary, "Marrow Graft with Filter Paper;"
  - Pierre Surprenant, Sherbrooke, Que, "Butée d'Autray;"
  - P. T. Smylski, Toronto, "Subcondylar Osteotomy;"
  - Stanley Kennett, Winnipeg, "Facial Deformity Treated by Maxillary Osteotomy;"
  - A. G. Parnell, London, Ont, "Indications for Tracheotomy in Acute Spreading Infection;"
  - Paul Mercier and H. Pham, Montreal, "Long-term Follow-up of Total Lowering of the Floor of the Mouth and Ridge Extensions for Atrophic Mandibles;"
  - M. G. Strelloff, Edmonton, "Closure of Oro-Antral Fistulae; Gold Plate Technique" (film); and
  - B. K. Arora, Saskatoon, "Surgical Removal of Papillary Hyperplasia: Report of 83 cases."
- J. H. Hovell, London, president of the British Association of Oral Surgeons, will be the guest speaker at the next annual CSOS meeting at Mont-Gabriel, Que, October 7-9, 1973.

## Dental Education

### Educational opportunity

#### Continuing education

The University of Western Ontario Faculty of Dentistry offers a six day participation course in occlusion and temporomandibular joint disorders May 7-12, 1973.

The course will be directed by Professor D. S. Moore and staff members of the UWO Department of Oral Medicine. Guest clinicians will be E. J. Rajczak, Hamilton, and S. J. Chiappone, Niagara Falls, NY.

Registration is limited to 10 participants. The registration fee is \$300.

For further information, contact D. S. Moore, Faculty of Dentistry, University of Western Ontario, London 72, Ont.

## CDA Retirement Savings Plan

Unit values of the Canadian Dental Association Retirement Savings Plan stood as follows on August 31, 1972:

*Fixed Income Fund* \$13.082;  
*Common Stock Fund* \$30.481.

Total assets (market value) of the plan were \$3,102,239.86.

The following portfolio purchases and sales occurred during the preceding month: bought 6,000 shares Trans Canada Pipelines; sold 3,300 shares Molson Industries Class A.

Section 146(5) of the Income Tax Act permits tax free contributions of up to 20 per cent of earned income or \$4,000, whichever is less, to a personal retirement savings program.

The Royal Trust Company, trustee of the CDA Retirement Savings Plan, offers

two separate investment media: a fixed income fund and a common stock fund. Contributions may be allocated wholly or partly to the funds of the contributor's choice. Transfers between funds are allowed without penalty.

The fixed income fund, confined to guaranteed government bonds, other guaranteed fixed income securities, debentures, preferred shares and other fixed income securities, offers excellent income with maximum security. The common stock fund, comprising Canadian and carefully selected American and other foreign stocks, has capital growth as its main objective.

No charges or commissions are payable on joining or withdrawing from the plan.

For further information please write to CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto 180, Ont.

## Research

### New method of tooth extraction

American scientists have developed a high-speed oscillating instrument which can extract many teeth better and faster than traditional methods.

The device rotates a tooth in place for only one-tenth of a millimetre in cycles ranging from 100 to 500 per second, thus quickly detaching connecting tissues with less trauma and blood loss than traditional methods produce. The clean, unbroken tooth can be lifted easily without damage to the jaw bone and surrounding tissues.

The experimental device consists of an assortment of sockets to grasp variously shaped teeth, and a handle slightly larger than that of the usual dental



drill. In the handle is a gearbox and an oscillating head. The instrument is pneumatically driven, much like a high-speed drill by either air or nitrogen under pressure.

The scientists report that some teeth come out in less than two seconds, while big teeth with long or curved roots may take almost two minutes. This is nine times faster than extraction of similar teeth with hand forceps. Also, there is no bruising, no clinical signs of heat and no effect on neighbouring teeth.

Although the device has only been tested on animals and fresh cadavers so far, its inventors believe the instrument to be so effective and simple to manage that it will help not only the oral surgeons, but also many general practitioners who will eventually feel competent to use it for simple extractions.

Some teeth have twisted roots, or are malpositioned, and will always have to be taken out in sections rather than whole; so forceps are not going to become obsolete. Also, the new instrument must first be tested on patients before its value can be properly assessed, but its developers feel it has promise to be a useful adjunct to dentists.

### **Facial difference in parents of cleft lip and palate children**

When cleft lip and palate appears without a history of the defect in the family, measurements show that both parents tend to have shorter noses, longer lower jaws, and less convex upper faces, according to a recent article in the *Cleft Palate Journal*.

The reporting scientists studied two groups of parents, one group had children with cleft lip and palate. The other group of parents, otherwise comparable, had children without the affliction. There were 20 parents in each group.

The scientists measured distances between certain bones and the lengths of others as seen in x-ray photographs of both groups. After comparing individuals and also the composite measurements of all fathers and all mothers in the two groups, they found consistent and statistically significant differences between certain facial dimensions of the two groups of parents. These findings do not apply to cases of cleft palate alone, which is considered to be another defect.

The causes of cleft lip and palate are not clear, especially in the many instances when the defect appears spontaneously in a family with no record of any previous cases.

### **Experts map periodontal disease fight**

Injection of an additional \$1.3 million by the US government for periodontal studies is expected to pave the way for a greatly intensified thrust against periodontal disease.

The additional funding will help to underwrite studies on the prevention of dental plaque by chemical and mechanical means since plaque control seems at present to be the most expedient solution to periodontal disease.

Also in prospect are:

—Clinical and laboratory studies aimed at understanding the biology of plaque, including its bacterial composition, chemistry, adhesive mechanism, immunology and pathology.

## **YOUR SECURITY**

*This is the fifth in a series of articles on insurance and investment programs available through the dental profession.*

The problem of determining how much life insurance to buy stems from a major misconception. Life insurance is too often regarded as a way to save money for retirement. It is not best described in this manner. Life insurance is better thought of as a form of financial protection designed to help meet against future liabilities.

For the dentist wishing to save for retirement, the CDA registered retirement savings plans are much better, by far.

The "best" amount of life insurance to buy is very much a personal decision, but there are some simple steps you can take to arrive at a reasonable figure. Essentially, you should add up your assets and then compare this figure with the amount of money which might be needed by your survivors or heirs if you should die tomorrow. The difference, of course, is the amount of life insurance you should consider buying.

In computing your assets however, beware of overestimating both the value of your practice and the value of your pension fund. In today's marketplace, the need for a newly graduated dentist to buy a practice is not great. Often a more prudent course may be to open a new practice.

Nonetheless, there is usually a real value to a practice for sale and some figure should be attached to it. Just be cautious in making your estimate.

The value of your pension fund is lowest in the early years of participation. Do not make the mistake of assuming that your present assets include the final planned principal amount you expect at age 60 or 65.

The value of your present estate may include real property. You should ask yourself if your heirs will have to sell that property to realize an income from it. Your decision, of course, determines whether or not you can add the value of the real estate to the income producing portion of the estate. Add in your stocks and bonds. Add in any amounts which you have loaned out, provided the money is collectable.

Against the value of your present estate you must subtract the amount of money your heirs will have to subtract before they can draw income. Among these liabilities might be:

—Payments owing on professional equipment;

—Studies of the severity of periodontal disease in patients with connective tissue disorders and with immunological deficiencies.

—Longitudinal studies of periodontal disease.

—Investigation of the effect of periodontal disease on general health.

—Development of in vitro and in vivo models and other methods of measuring periodontal disease.



- Money due to suppliers of materials;
- Mortgages due on any real estate;
- Personal indebtedness on automobiles, amounts owing other creditors.

When you arrive at the absolute amount out of which your heirs may draw an income, divide that amount by the number of years your heirs will need a regular cash flow. This gives the annual amount your survivors may expect and it is the amount of life insurance you should consider buying.

Initially, a modest "clean up" insurance policy might be considered. Life underwriters suggest an amount of approximately \$2,500 is sufficient to cover burial expenses, legal costs and leave a modest contingency fund on which the heirs may rely while your will is probated.

Gradually diminishing expenses such as mortgages, and other time payment indebtedness are best provided for by diminishing term insurance. Term insurance provides for an initial amount of protection which drops each year until the end of the term of the policy. One of the most common forms is that used to cover simple mortgage payments on a residential dwelling. The period of time coincides with the life of the mortgage. Premiums, the cost, are lowest for this kind of life insurance. It is available as part of the CDSPI package plan.

According to the Canadian Life Insurance Association, there are two main kinds of life insurance to examine, other than term. These are endowments and ordinary or whole life insurance.

Endowments are considered to be the most expensive to purchase. The policies provide that a stipulated amount will be paid at a fixed future date if the person insured is still alive then. And they provide that this sum will also be paid to the beneficiary if the person dies before that date. The emphasis in endowment insurance is on cash value. Protection is secondary.

Ordinary or whole life policies also provide for a fixed sum to be paid on the death of the insured. Usually there is no fixed sum payment at a future date. The number of years during which the premiums are to be paid are often included in the naming of the kind of insurance.

For instance, you might see a "20-pay-life" insurance contract. This means you pay premiums for 20 years and the insurance remains in force throughout the balance of your life. The number of years can vary. The use of the word "whole" comes from the option to elect to pay premiums for the balance of your life. The longer the term of payment, the lower the amount of annual premium. Many of these policies

also offer a "conversion" clause permitting the insured to increase the principal amount or to convert the type of policy to endowment.

Both endowments and ordinary life policies are offered by most life insurance companies on a "participating" or "non-participating" basis. The word "participating" refers to sharing in the company's profits. If the insured elects a par policy, he pays a higher premium. When you consider par versus non-par, weigh carefully the costs and guaranteed additional benefits. Often the additional cost of par insurance is too high.

You may wish to examine variable or equity backed life insurance contracts. Usually these provide for a sum of life insurance protection while the premiums paid are used to build a fund which will be used to buy an annuity for the insured at age 60, 65 or 70. Most contracts provide that on death or maturity of the contract the insured is guaranteed that at least 75 per cent of the premiums paid in will be paid back regardless of the financial experience of the fund.

Finally, a word about costs. Be sure to call at least three companies when considering life insurance. Ask each to quote on the costs of the same kinds and amounts of life insurance you want. Rates may vary considerably. Over a period of years the difference paid can be considerable. If you choose to buy two or more kinds of policies, compare quoted rates carefully. If company A is lowest on, say, endowments, it doesn't follow that the same company will be lowest on a whole life policy.

The cost of life insurance is quoted on the basis of so many dollars per thousand dollars of protection. The amounts quoted are annual premiums and cover the succeeding 12 months of coverage. If you want to pay on a monthly, quarterly or semi-annual basis, the insurance company may legally deduct the balance of premium owing in the event of a claim during the next 12 months.

Besides it is cheaper to pay annually. The privilege of amortizing your payments over 12 months costs extra. This extra amount is not regulated by law. The insurance companies may charge what the traffic will bear.

Beware, too, of the pushy salesman. You should know that the higher the premium, the greater the commission for the salesman. In the case of endowments, the agent may receive up to 70 per cent of the first year premium as his commission with reduced percentages as commission for the next nine years of the policy life. Commission rates are lower on whole or ordinary life. Commission rates are lowest on term policies.

## Awards and Appointments

## Deaths

**C. R. Hill** of Saskatoon was recently elected vice-president of the College of Dental Surgeons of Saskatchewan, not president as reported on page 241 of the July Journal. **A. W. Geisthardt**, Regina, is president for 1972.

**Jekyll, Victor Henry Theodore.** 74. St. Jerome, Que. McGill University, 1925. 25-3-72. Survived by Frances (wife); Peter and Robert (sons); and Florence (sister).  
**Kapur, Rajinadar Nath.** 34. Smith Falls, Ont. University of Toronto, 1969. 11-8-72. Survived by Maria (wife) and Raj (son).

**Rochon, René.** Detroit, Mich. University of Toronto, 1921. August 1972.  
**Rousseau, Edgar.** 64. Sherbrooke, Qué. Université de Montréal, 1938. 30-7-72.  
**Shaw, Wesley Edward.** 53. Mission City, BC. University of Toronto, 1945. 8-8-72. Survived by Agnes (wife) and four children.  
**Sparling, Ernest.** 71. Tilbury, Ont. Royal College of Dental Surgeons of Ontario, 1924. 23-8-72. Survived by five sisters and two brothers.







## L'Association

### Les directeurs de l'ADC et de l'ADA discutent de problèmes mutuels à Toronto

Les problèmes réciproques des deux organismes furent exposés au cours de la réunion conjointe du Conseil d'administration de l'Association dentaire américaine et du Conseil exécutif de l'Association dentaire canadienne, à Toronto, le 11 septembre, pour la cinquième fois dans l'histoire des deux associations. Les deux groupes se sont déjà rencontrés à Toronto en 1960 et en 1966 et à Chicago en 1963 et en 1969.

Les questions à l'ordre du jour étaient les suivantes:

- les effets sur les honoraires dentaires du gel des salaires aux Etats-Unis;
- l'appartenance réciproque aux conseils d'administration et d'enseignement des associations médicales et dentaires;
- le nouveau comité de coordination de la dentisterie préventive de l'Association dentaire américaine;
- la participation des dentistes aux programmes de santé nationale;
- l'enseignement permanent;
- les organisations dentaires étudiantes;
- les récusations légales à la qualité de membre de l'ADA;
- les relations publiques;
- les techniciens dentaires, les technologues dentaires et le service des prothèses à prix modiques;
- le projet de loi canadienne sur la concurrence;
- les projets de lois "omnibus" de l'Ontario et du Québec affectant les professionnels de la santé;
- le groupement des disciplines spécialisées;
- l'expansion des fonctions des auxiliaires dentaires; et
- le rapport entre les fluorures et l'environnement.

### Le docteur Compton quitte le poste de rédacteur

Le docteur F. H. Compton, rédacteur du journal et directeur des communications de l'ADC a remis sa démission de ce poste le 1er septembre. Il était rédacteur depuis 1960 et fut nommé directeur des communications en janvier cette année. Il fut aussi président de l'Association américaine des rédacteurs dentaires.

Le docteur Compton s'est inscrit au programme de périodontie de l'Université de Toronto et se propose subsequmment de retourner à l'exercice de sa profession.

## Le Canada

### Les professions soumises à de nouveaux contrôles législatifs en Alberta

En Alberta, la dentisterie devra à nouveau se soumettre au contrôle du Comité législatif des professions et des occupations quand ce dernier, après avoir reconstituer ses cadres, tiendra des audiences plus tard dans le courant de l'année. Il étudiera les lois provinciales existantes, plus spécialement celles des professions et des occupations dont la gestion est autonome.

Parmi les questions auxquelles le Comité s'efforcera de trouver des réponses, citons

—Les professions autonomes se préoccupent-elles d'établir si le public reçoit les meilleurs services possibles?

—Les professions autonomes se préoccupent-elles davantage de leurs intérêts respectifs?

—Les professions exercent-elles une surveillance absolue sur le recrutement de leurs membres? Cette surveillance ou ce manque de surveillance répondent-ils à l'intérêt public?

—Est-il désirable que les associations professionnelles et les organismes

modérateurs soient distincts pour chaque profession?

—Le public devrait-il être représenté dans les comités disciplinaires?

—Les professions devraient-elles détenir le droit d'accorder ou de refuser l'autorisation d'exercer une profession?

—Les normes fondamentales des professions autonomes devraient-elles être déterminées par une loi-cadre?

—Qui devrait détenir la responsabilité d'établir les exigences concernant la formation professionnelle pour chaque profession?

Le Comité doit présenter le rapport de son enquête à la législature au début de l'an prochain. Les mesures législatives apportant des changements, le cas échéant, ne sont pas prévues avant la session du printemps 1973.

### Subventions de \$100,000 pour l'organisation du Service social en milieu scolaire dans l'Est du Québec

Le ministre des Affaires sociales du Québec, M. Claude Castonguay, vient d'accorder des subventions totalisant \$100,000 pour assurer la poursuite du programme d'organisation du service social en milieu scolaire dans l'Est du Québec pour les groupes de la maternelle à la sixième année.

Ce programme, en opération depuis le mois d'octobre 1971, veut favoriser l'insertion et l'adaptation des élèves à leur milieu par une action sur les différents facteurs qui conditionnent leur fonctionnement social. De plus, l'organisation des services sociaux en milieu scolaire s'effectue avec la participation de certains autres services dont la pédagogie, la psychologie et l'orthopédagogie.

Ce service social, dans le cadre des services aux étudiants, entreprend ainsi auprès de la population scolaire une action préventive par l'amélioration des dispositions et des programmes pédagogiques et une action curative par un ensemble de services. Le service social en milieu scolaire offre donc des services directs par un traitement psychosocial individuel et des services indirects par un travail de groupe avec les professeurs et les parents.

Pour la poursuite de ce programme d'organisation du service social en milieu scolaire, le Service social de l'enfance et de la famille de La Pocatière a bénéficié d'une subvention de \$20,000 alors que le Centre de consultation sociale de Rimouski et le Service social de Gaspé ont fait l'objet d'une subvention de \$40,000 chacune.

Ce programme d'organisation du service social en milieu scolaire s'inscrit dans le cadre de l'Entente de Coopération Canada-Québec. Les montants attribués par les présentes subventions sont donc partageables à 50 p.c. par le gouvernement fédéral au titre du Régime d'Assistance publique du Canada.





# What sets a dentist apart?

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## Chronique internationale

### Les Canadiens contribuent au développement de la dentisterie préventive en Afrique orientale

Deux dentistes canadiens ont présenté des communications lors d'un séminaire dentaire en Afrique orientale se terminant le 23 juillet dernier à Nairobi au Kenya. Le symposium avait été organisé par l'Association dentaire de l'Afrique orientale.

Le docteur Jean Turgeon, de Montréal, qui dirigeait la délégation canadienne, a exposé le programme de recherche dentaire de l'Université de Montréal et a présenté des communications sur les maladies parodontales ainsi que sur la prévention et le contrôle des maladies dentaires en général. Le docteur Turgeon est secrétaire de l'Association des périodontistes du Québec.

Les récents résultats de la recherche en méthodologie de l'éducation sanitaire ont fait l'objet d'une communication présentée par le docteur J. M. W. Lawrence, directeur dentaire du Service de santé de Scarborough, de la région métropolitaine de Toronto.

### Des canadiens étudieront les systèmes européens de santé dentaire

Une subvention fédérale de \$3.600 a été accordée à la Faculté de chirurgie dentaire de l'Université de Toronto pour assurer les frais d'une étude comparative des systèmes de santé dentaire existants en Grande-Bretagne, dans les états scandinaves, la Tchécoslovaquie et la Russie. Le docteur A. M. Hunt bénéficiaire de cette bourse, est vicedoyen de la Faculté et il a obtenu un congé sabbatique d'un an pour réaliser ce projet.

L'étude a pour objet d'aider à déterminer des méthodes susceptibles de protéger efficacement la santé dentaire des habitants des agglomérations des régions dont la densité de la population est élevée. Les résultats de cette enquête seront disponibles dès septembre 1973.

### Les dentistes sont invités à appuyer "l'Année internationale du livre"

L'UNESCO, l'organisme d'éducation scientifique et culturelle des Nations Unies, a proclamé l'année 1972 "Année internationale du livre".

Afin de répondre à l'inspiration du mot d'ordre "des livres pour tous", les

organisateurs invitent les dentistes à prendre une part active à la production et à l'utilisation de livres dans le but de promouvoir le développement culturel, économique et social.

Tous les pays en voie de développement se caractérisent par un grand besoin de manuels à tous les niveaux des programmes d'éducation et par l'urgence de développer les services des bibliothèques, plus particulièrement ceux des bibliothèques mobiles afin qu'elles puissent atteindre les enfants d'âge scolaire et les personnes bénéficiant déjà de programmes pour les analphabètes dans les régions rurales.

Parmi les projets subventionnés par les fonds recueillis par l'UNESCO durant l'Année internationale du livre 1972 citons: des bibliothèques mobiles de références au Ghana, des livres pour les enfants réfugiés du Moyen-Orient, une banque de livres pour les étudiants d'une école de génie aux Indes, des bibliothèques de village pour les enfants du Ceylan, du matériel pédagogique pour les programmes littéraires à la Jamaïque ainsi que des cahiers et des crayons pour les enfants boliviens.

A titre de suggestion, tous les dentistes qui empruntent des livres de la bibliothèque Sydney W. Bradley Memorial de l'ADC peuvent contribuer à cette oeuvre en versant un cent pour chaque livre remis à la bibliothèque. Les sommes données à l'UNESCO sont appliquées directement aux projets approuvés pour les pays en cause. Aucune somme n'est perçue à des fins administratives.

## Organisations dentaires

### L'ADO inaugure le "Fonds de l'action pour la santé dentaire"

L'Association dentaire de l'Ontario a demandé à chaque dentiste de cette province de verser \$200 au Fonds de l'action pour la santé dentaire. La somme recueillie sera appliquée à un programme d'éducation appuyant les objectifs préconisés par la profession dans le domaine de la santé dentaire publique, a révélé le docteur W. L. Heaslip, président de l'ADO.

Il a ajouté que l'ADO accorde un intérêt immédiat à la reconnaissance légale des techniciens dentaires par le gouvernement, mais que "l'objectif de l'Association consiste à mobiliser l'opinion publique afin d'obliger le gouvernement à reconnaître à la santé dentaire le statut prioritaire qui lui revient et de s'assurer que les soins qu'elle requiert soient confiés à des professionnels compétents et bien formés."

Le docteur Heaslip a déclaré que l'ADO demanderait au gouvernement

d'amender le projet de loi concernant les technologues dentaires à l'effet d'établir des normes autorisant l'exercice des "techniciens" dentaires sous la surveillance des dentistes.

Il ajoute que la profession réclamerait instamment la mise en oeuvre de mesures telles que les soins dentaires aux enfants, l'appui financier à la dentisterie gériatrique, la pratique de la fluoruration dans la province toute entière, le développement de programmes d'éducation sur la santé dentaire et de plus amples facilités en vue de la formation et de l'enseignement destinés au personnel dentaire."

## Enseignement dentaire

### L'enseignement permanent: thème majeur de la conférence de septembre

L'enseignement permanent était le thème majeur de la conférence nationale qui a eu lieu du 25 au 27 septembre. La conférence, organisée par le Conseil de l'enseignement de l'Association dentaire canadienne, a bénéficié d'une subvention de \$16.000 du ministère de la Santé nationale et du Bien-être social.

La conférence avait un double objectif: (1) établir les responsabilités des organismes existants dans le domaine de la dentisterie à l'égard de l'enseignement permanent et (2) déterminer les méthodes de coopération efficaces susceptibles d'assurer le processus continu de l'enseignement de la dentisterie, et les meilleurs procédés pour dispenser les soins dentaires au public.

A chaque journée du forum de trois jours, un aspect particulier de l'enseignement dentaire permanent faisait l'objet de l'étude des délégués. Le thème de la première journée était consacré à "l'organisation, l'administration et la responsabilité de l'enseignement permanent au Canada. Principaux points de la fonction actuelle sur le sujet". Quatre conférenciers, occupant des postes clés dans l'un des divers organismes dont l'action affecte directement la dentisterie au Canada, ont discuté du rôle des gouvernements, des organismes chargés d'autoriser l'exercice de la profession, des associations et des facultés universitaires.

Le deuxième jour les délégués ont étudié "les besoins de l'enseignement permanent" et ils avaient l'avantage d'entendre divers conférenciers discuter de leurs procédés d'application au bénéfice du dentiste généraliste, du spécialiste et du professeur. Les délégués ont aussi eu l'occasion d'examiner le pour et le contre des lois sur l'enseignement permanent.

Les sessions du troisième jour portaient sur la recherche "d'une méthode



## VOTRE SÉCURITÉ

*Cet article est le cinquième d'une série traitant des programmes d'assurances et de placement disponibles aux membres de la profession dentaire*

Le problème d'évaluer le montant d'assurance sur la vie qu'il convient de se procurer provient d'une conception erronée de ce système de protection. En effet, un grand nombre de personnes considèrent l'assurance sur la vie comme un moyen d'accumuler des économies en prévision de la période de retraite. Cette opinion commune ne définit pas parfaitement les objectifs visés. Il est préférable de considérer l'assurance sur la vie comme une forme de protection financière prévue en fonction des responsabilités et des obligations pécuniaires que l'avenir nous réserve.

Mais pour les chirurgiens dentistes qui désirent économiser en prévision de la période de retraite, les régimes enregistrés d'épargne retraite de l'ADC présentent des avantages beaucoup supérieurs.

Bien que le montant idéal d'assurances sur la vie que l'on puisse se procurer dépend surtout d'une décision personnelle, il existe certaines dispositions simples à prendre qui permettront d'en établir les proportions raisonnables. En définitive, il s'agit d'établir la somme de votre actif et de la comparer à celle dont vos héritiers auraient besoin si vous deviez décéder demain. La différence entre ces deux sommes représente le montant d'assurance sur la vie que vous devriez vous procurer.

Toutefois, en calculant votre actif, il faut vous garder de surestimer à la fois la valeur de votre clientèle professionnelle et celle de votre pension de retraite. Sur le marché actuel, les demandes d'achat d'une clientèle ne sont pas très nombreuses parmi les chirurgiens dentistes nouvellement diplômés. Il leur semble, règle générale, plus indiqué et plus prudent de recruter une nouvelle clientèle.

Il faut dire cependant que la vente d'une clientèle représente habituellement une valeur réelle et il importe d'en fixer la valeur. Mais soyez circonspect en l'établissant.

La valeur de votre pension de retraite atteint son plus bas niveau au cours des premières années de

votre participation. Aussi, ne commettez pas l'erreur, en évaluant votre actif, de vous baser sur le montant final que vous prévoyez recevoir à l'âge de 60 ou 65 ans.

La valeur de votre actif actuel pourra comporter des biens immobiliers. Il faut alors vous demander si vos héritiers devront les vendre ou les exploiter. Votre décision déterminera naturellement s'il vous est possible ou non d'ajouter la valeur que ces derniers pourront rapporter. Ajoutez aussi vos titres et vos obligations. Ajoutez également le montant de toutes vos créances à condition que ces sommes soient recouvrables.

De la valeur de vos biens immobiliers, il vous faut déduire les montants que vos héritiers devront retrancher avant d'en tirer un revenu. Ce passif comporte les obligations suivantes:

- les sommes dues sur l'équipement professionnel;
- les sommes dues aux fournisseurs de matériel;
- les hypothèques dues sur les biens immobiliers;
- les dettes personnelles contractées pour l'achat d'automobiles ou pour des emprunts auprès d'autres créanciers.

Lorsque vous avez déterminé le montant absolu dont vos héritiers pourront tirer des revenus, divisez ce montant par le nombre d'années durant lesquelles vos héritiers devront pouvoir disposer de disponibilités. Vous obtiendrez ainsi la somme annuelle que vos héritiers auront en mains et du même coup le montant d'assurance sur la vie que vous devriez souscrire.

Au point de départ, vous pouvez aussi considérer un contrat d'assurance modeste pouvant couvrir les frais d'urgence. Les assureurs sur la vie conseillent d'affecter un montant approximatif de \$2,500 pour régler les frais généraux: funérailles, frais légaux, tout en laissant un fonds de prévoyance à la disposition des héritiers, en attendant la validation de votre testament.

Les assurances à termes décroissants sont particulièrement appropriées pour subvenir aux dépenses à décroissement graduel telles que les hypothèques et autres dettes réglées à termes. Ce mode d'assurance garantit un montant initial de protection qui diminue graduellement chaque année jusqu'à l'expiration du contrat. L'une des formes les plus utilisées garantit le remboursement d'une dette hypothécaire sur une résidence. La période durant laquelle elle est en vigueur coïncide avec la durée de l'hypothèque. Les primes en sont les moins élevées de tous les contrats d'assurances sur la vie. Cette assurance est comprise dans

de distribution de l'enseignement permanent" et les sujets à l'étude comportaient l'enseignement permanent dans les centres ruraux et urbains, l'enseignement par équipes, l'utilisation des multimédia, les cours abrégés et les discussions.

Le docteur G. S. Beagrie, assistant directeur de la division des étudiants diplômés de la Faculté de chirurgie dentaire de l'Université de Toronto agissait comme président de la conférence.

### **Bourses pour la formation de professeurs décernées par le FCED à huit chirurgiens dentistes du Québec**

Le Fonds canadien pour l'enseignement dentaire a décerné des bourses pour la formation de professeurs à huit chirurgiens dentistes du Québec. Ces bourses, dont les montants varient de \$1,000 à \$7,000 pour former un total de \$58,-

000, ont été attribuées à quinze chirurgiens dentistes au pays. Les bénéficiaires du Québec comprennent les docteurs:

N. Brien, de Montréal, année terminale en prosthodontie à l'Université du Texas;

T. Duquette, de Montréal, deuxième année en médecine et diagnostic buccal à l'Université de l'Indiana;

I. M. Catz, de Montréal, année terminale en endodontie à l'Université de Boston;



le plan directeur du Canadian Dental Service Plans (CDSPI).

D'après l'Association canadienne de l'assurance sur la vie, deux espèces principales d'assurances sur la vie, autres que les assurances à termes, peuvent aussi être considérées: l'assurance dotale (dotation) et l'assurance sur la vie entière.

L'assurance dotale est la plus onéreuse. Les contrats garantissent un montant déterminé qui sera versé à une date ultérieure, à condition que l'assuré soit encore vivant. Ces contrats garantissent aussi le versement de la somme choisie au bénéficiaire de l'assuré si ce dernier décède avant cette date. Le versement en espèces de la somme garantie par le contrat constitue la caractéristique principale de l'assurance dotale. La protection, dans ce cas, n'est que secondaire.

Les contrats sur la vie entière garantissent aussi, au décès de l'assuré, le versement d'une somme déterminée. Le nombre d'années au cours desquelles les primes seront versées est généralement indiqué dans la désignation du type d'assurance.

A titre d'exemple, l'indication "assurance 20 paiements" sur un contrat d'assurance sur la vie signifie qu'il vous faudra verser les primes durant 20 ans, à la suite desquels l'assurance demeurera en vigueur le reste de votre existence. Les contrats peuvent aussi varier par le nombre d'années, et conséquemment par le nombre de primes annuelles à verser. L'indication "vie entière" signifie que l'assuré choisit de payer les primes sa vie durant. Plus l'échéance déterminée pour le paiement est longue, moins les primes annuelles seront élevées. Plusieurs contrats de ce genre contiennent aussi une clause de "conversion" permettant à l'assuré d'augmenter le montant capital ou de convertir le contrat et une assurance dotale.

La plupart des compagnies d'assurance sur la vie offrent des contrats d'assurance sur une base de "participation" ou de "non participation". Le terme "participation" signifie que l'assuré participe aux bénéfices de la compagnie. Si l'assuré désire un contrat au pair, il devra verser une prime plus élevée. En comparant la valeur du contrat au pair à celle du contrat qui ne l'est pas, il est recommandable d'évaluer soigneusement les coûts et les bénéfices additionnels garantis. Fréquemment, le coût additionnel exigé pour l'assurance au pair est trop élevé.

Vous pourrez juger utile d'examiner les contrats d'assurances à régime variable ou fixe. Habituellement ces contrats garantissent à la fois une protection comportant une somme d'assurance sur la vie alors que le versement cumulatif des primes forme un fonds qui

sera appliqué à constituer une rente au bénéfice de l'assuré, quand ce dernier atteindra l'âge de 60, 65 ou 70 ans. La plupart des contrats garantissent à l'expiration du contrat ou au décès de l'assuré un remboursement dont le montant ne sera pas moindre que 75 p.c. des primes versées, sans qu'il ne soit tenu compte du rendement du placement.

Ajoutons en dernier lieu un mot concernant les coûts. Quand vous projetez de vous procurer de l'assurance sur la vie, prenez la précaution de communiquer avec au moins trois compagnies. Demandez à chacune de vous indiquer les coûts des contrats d'assurance sur la vie comportant les mêmes garanties désirées. D'une compagnie à l'autre, les taux peuvent varier considérablement. En tenant compte du nombre d'années, le montant de la différence versée peut être assez importante. Si vous décidez de vous procurer deux types de contrats ou plus, comparez soigneusement les taux qui vous sont soumis. Quand une compagnie offre les meilleurs taux pour l'assurance dotale, il ne s'ensuit pas nécessairement que la même compagnie vous proposera les taux les plus bas pour un contrat d'assurance sur la vie entière.

Le coût de l'assurance sur la vie est basé sur une somme proportionnelle à un certain nombre de dollars par mille dollars de protection. Les montants indiqués constituent les primes couvrant les 12 mois subséquents. Quand vous désirez verser la prime selon un rythme d'échéances mensuelles, trimestrielles ou semi-annuelles, la compagnie d'assurance peut légalement déduire le solde de la prime en cas de réclamation les 12 mois suivants.

Considérez qu'il est moins coûteux de régler la prime annuellement. Le privilège d'amortir vos paiements sur une période de 12 mois exige des frais additionnels. Ces frais additionnels ne sont pas réglés par la loi. Il s'ensuit que les exigences des compagnies d'assurance peuvent être basées sur les fluctuations du marché.

Méfiez-vous aussi du vendeur d'assurances qui tente d'exercer une pression. Vous devez savoir que plus la prime est considérable, plus la commission du vendeur est élevée. Pour les cas d'assurances dotales, le vendeur peut encaisser jusqu'à 70 p.c. de la première prime versée sous forme de commission, ainsi qu'un pourcentage réduit durant les neuf années subséquentes où le contrat sera en vigueur. Les taux des commissions sont moins élevés pour l'assurance sur la vie entière. Les polices à termes sont celles qui rapportent les taux de commissions les moins élevés au vendeur.

P. W. Stutman, de Montréal, année terminale en prosthodontie à l'Université de Boston;

J. D. Townsend, de Montréal, année terminale en dentisterie restauratrice à l'Université de Washington;

M. Werbitz, de Montréal, année terminale en parodontologie à l'Université de Boston;

P. V. Goldberg, de Montréal, première année en dentisterie restauratrice à l'Université de Washington; et

R. J. Markey, de Montréal, première année en orthodontie à l'Université de Washington.

## L'économie

### Les chirurgiens dentistes de la Gaspésie reçoivent les paiements moyens les plus élevés de la Régie de l'assurance-maladie du Québec

D'après le troisième rapport annuel de la Régie de l'assurance-maladie du Québec, les chirurgiens dentistes de la région du Bas-St-Laurent-Gaspésie ont

reçu de la Régie les paiements moyens les plus élevés de leur catégorie pour 1971-72, c'est-à-dire \$9,850.

Les chirurgiens dentistes des régions du Nord-Ouest, avec \$7,987 et du Saguenay-Lac-St-Jean, avec \$6,300, occupent le second et le troisième rang.

Le paiement moyen le moins élevé, c'est-à-dire \$3,003, a été versé aux chirurgiens dentistes de la région de Montréal. Les paiements moyens pour l'ensemble des chirurgiens dentistes du Québec se chiffrent à \$4,527.

Les spécialistes en chirurgie buccale des régions du Saguenay-Lac-St-Jean,



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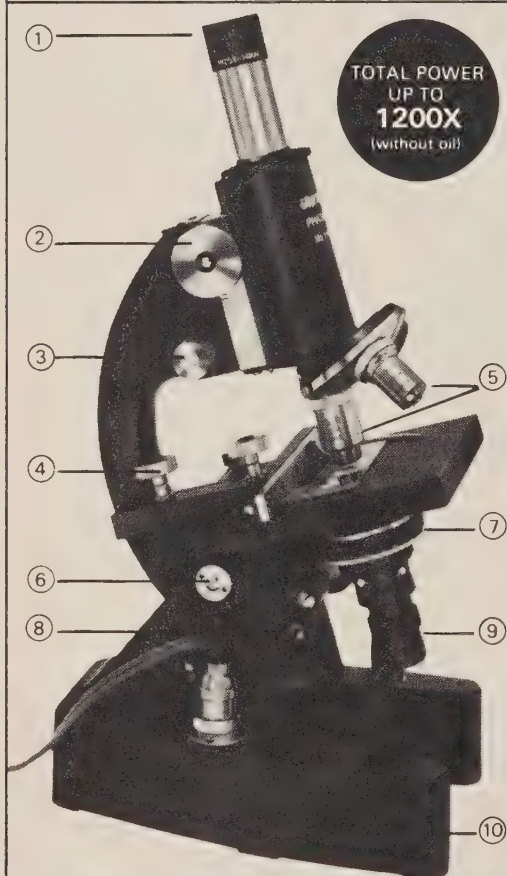
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As the Preventive Dental Program developed and now has been adopted by many thousands of modern dentists, techniques have standardized. As a result, the laboratory general-purpose Model MPH Microscope turns out to have accessories that are superfluous as far as the dentist is concerned. To take just one example, no technician wants to waste time messing around with an oil immersion objective to obtain the high magnification needed to show bacteria. Therefore. . .

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**ASK FOR A FREE 10 DAY TRIAL**



MODEL MPH-DDS-W20X illustrated

## FEATURES OF MPH-DDS Dental Demonstration Scopes

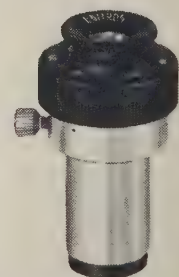
- ① Eyepiece: 20X Widefield Pointer (shown) or Zoom 10X-20X, or 10X Demonstration Moveable Pointer (illustrated separately)
- ② Safety Auto-stop Coarse Focus will not break slides
- ③ Positive, accurate Fine Focus for sharp high-power images
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- Model MPH-DDS-ZM (zoom 100X-1200X) . . . . . \$309.
- Model MPH-DDS-DE (with Demo. Eyepiece) . . . . . \$334.



ABOVE: The Demonstration 10X Eyepiece lets you and the patient view simultaneously. Move the Pointer to spot exactly what you want the patient to see. Total powers 100X and 600X.

BELOW: The Zoom Eyepiece lets the patient see the specimen from his own mouth, dynamically zoom up to twice its power (10X thru 20X). Total powers 100X-200X and 600X-1200X.



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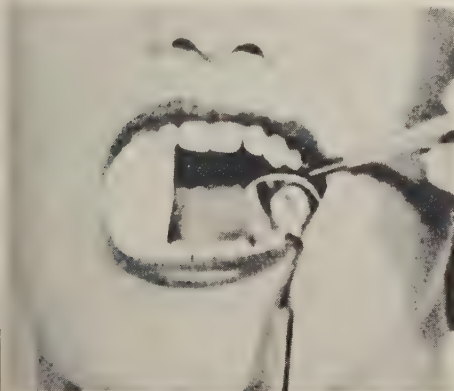
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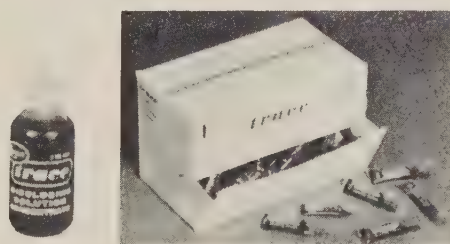
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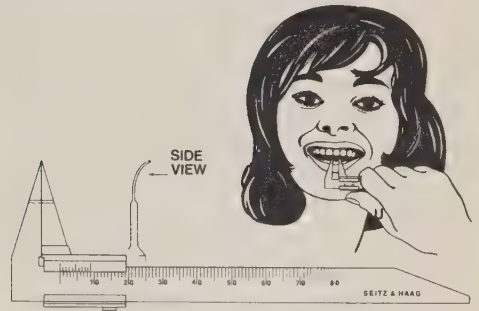
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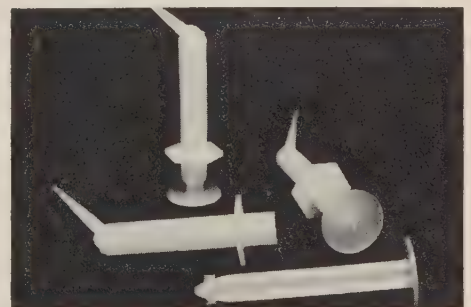


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de la ville de Québec, de Trois-Rivières et des Cantons-de-l'Est ont reçu une moyenne de \$52,850 en 1971-72. Les spécialistes en chirurgie buccale de Montréal ont reçu \$16,000 et la moyenne des paiements versés à ces spécialistes pour l'ensemble du Québec se chiffre à \$24,844.

Le rapport signale que les paiements moyens indiquent les montants versés pour les services assurés dispensés en vertu du régime de l'assurance-maladie du Québec. Les bénéficiaires comprennent des dentistes en résidence, ceux qui ont récemment commencé l'exercice de leur profession, les chirurgiens dentistes retraités et ceux qui exercent leur profession à temps partiel. Conséquemment, les paiements moyens ne représentent pas nécessairement la rémunération versée aux dentistes exerçant leur profession à plein temps.

### **L'Association médicale canadienne préconise de limiter l'autorisation de la pratique médicale**

L'Association médicale canadienne réclamera, par l'entremise de la Fédération des autorités médicales chargées d'autoriser l'exercice de la médecine, que les organismes provinciaux chargés de cette autorisation établissent le principe de limiter l'autorisation d'exercer la médecine, selon la formation et la compétence des candidats.

L'Association médicale canadienne a déclaré que certains organismes chargés d'autoriser l'exercice de la médecine reconnaissent déjà que la pratique de certains médecins devraient comporter certaines restrictions relatives à l'étendue de l'exercice de leur profession en rapport avec la formation qu'ils ont reçue.

La recommandation de l'AMC tient compte aussi du fait que l'enseignement médical permanent, pour être effectif, ne peut s'appliquer qu'à des domaines limités.

## **Fluoration**

### **La fluoration de l'eau de consommation à l'école protège contre la carie**

La fluoration de l'eau de consommation des écoles situées dans des régions ne disposant pas d'aqueduc offre une protection considérable contre la carie dentaire, affirme le docteur H. S. Horowitz de l'Institut national de la recherche dentaire des États-Unis.

Le docteur Horowitz révèle que les résultats d'une étude, poursuivie durant 12 ans à Elke Lake en Pennsylvanie, démontrent que le procédé a réduit de 40 p.c. le nombre de caries. L'eau de consommation de l'école avait été fluorée dans une proportion de quatre fois et demie la quantité optimale de fluorure recommandée pour les agglomérations de cette région. Ce dosage avait été adopté afin d'égaliser la quantité de fluorure que les enfants auraient consommé si le procédé avait été appliqué idéalement à l'école et à la maison.

Le docteur Horowitz ne décèle aucun symptôme de fluorose dentaire. Il constata plutôt une diminution considérable de la perte des premières molaires.

### **Régime d'épargne-retraite de l'ADC**

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 31 août 1972:

*Fonds à revenu fixe* \$13.082;

*Fonds d'actions ordinaires* \$30.481.

L'avoir total (valeur marchande) du régime se montait à \$3,102,239.86.

Au cours du mois précédent, les transactions ont été les suivantes: achat 6,000 actions de Trans Canada Pipeline; vente 3,300 actions de Molson Industries Class A.

Le paragraphe 146(5) de la loi régissant l'impôt sur le revenu autorise des contributions non imposables à un programme de retraite personnelle, représentant jusqu'à 20 p.c. du revenu, avec un maximum de \$4,000.

La Compagnie Trust Royal, qui gère le Régime d'épargne-retraite de l'ADC, offre deux sortes de placements distincts: un fonds à revenu fixe et un fonds d'actions ordinaires. Les contributions peuvent être faites entièrement ou en partie au(x) fonds que choisit le contributeur. Il peut faire des transferts entre les fonds sans payer d'amendes.

Le fonds à revenu fixe, qui se compose de bons du trésor, d'obligations, d'actions privilégiées et d'autres sécurités à revenu fixe, offre un très bon revenu avec un risque très faible. Le fonds d'actions ordinaires, qui se compose d'actions ordinaires canadiennes, américaines et étrangères soigneusement choisies, a comme objectif principal l'augmentation du capital.

L'adhésion au programme ou le retrait n'entraîne aucun paiement supplémentaire, ni commission.

Pour de plus amples renseignements, veuillez écrire à: CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto 180, Ont.

## **Recherche**

### **L'acide phosphorique intensifie la protection obtenue par l'application de fluorures**

Une seule application minime d'une solution d'acide phosphorique suivie de l'application immédiate d'une solution de fluorures accroît la diminution de la carie dentaire dans des proportions plus grandes que par la seule application de fluorures.

Ce résultat a été révélé récemment par les scientifiques qui effectuent des travaux au Forsyth Dental Center de Boston. Ces derniers ont découvert qu'une application infime de mordant (acide phosphorique diluée (0.05m) ) permet à l'émail d'absorber et de retenir des quantités beaucoup plus considérables d'ions fluor, provenant de tous les sels de fluorure qu'ils ont éprouvés. Ils décelèrent moins de carie et ne constatèrent aucun effet nocif résultant de cette brève exposition à l'acide phosphorique.

Les chercheurs ont aussi constaté que trois applications minimales d'une solution acidifiée de fluorure d'ammonium (pH 4.4) augmentent, dans des proportions plus que doublées, la quantité de fluorures encore présente dans l'émail de surface, deux semaines après l'application, en prenant comme point de comparaison un traitement similaire utilisant le fluorure de sodium. D'autres composés de sels de fluorure, dont les propriétés sont moins acides, se montrèrent moins efficaces.

## **Santé publique**

### **Aucune quantité nocive de plomb dans les dentifrices fluorés**

Dans le but de rassurer le public, l'Association dentaire américaine a confirmé que les dentifrices fluorés évalués par ses services sont à la fois efficaces et inoffensifs. Cette déclaration de l'Association répondait à des communiqués de journaux prétendant que certains dentifrices fluorés pouvaient contenir une quantité excessive de plomb.

Le personnel scientifique de l'ADA vérifia la quantité de plomb contenue dans les dentifrices en usage il y a quelque 30 ans, alors que les fabricants utilisaient pour la première fois des tubes en plomb.

L'enquête fut reprise en 1964 alors que l'ADA examina le contenu en plomb d'un dentifrice très répandu (Crest). L'administration des aliments et drogues des États-Unis a aussi entrepris récemment l'examen du dentifrice Crest. Toutes les épreuves tentées à cette fin ont révélé que la teneur en plomb était négligeable.



# NEW ERA IN CANADIAN DENTISTRY

## Accreditation of specialty programs marks new era in Canadian dentistry

Canadian dentistry has entered a new era with the initiation, this year, of a program of accreditation for specialty training courses.

Credit for this giant step forward must go to the Canadian Fund for Dental Education, the source of a \$20,000 grant earmarked for development in the field of accreditation. This grant, the largest single award ever made by the Fund, made it possible for the Canadian Dental Association's Council on Education to launch a program of accreditation for graduate and postgraduate training courses leading to certification in specialty fields recognized by the CDA and carried out in Canadian dental schools.

However, this complex and massive undertaking, which involved surveying 11 individual programs in five dental schools while, at the same time, carrying on with the regular undergraduate accreditation program, was not accomplished by dollars alone. It also required a lot of hard work from many people in a number of areas. In particular, many busy specialists and general practitioners made a great sacrifice in time, money and effort in order to carry out the required surveys.

This collective effort has been highly successful. In fact, it marks a milestone in the development of specialist training programs in Canadian dentistry, just as the initiation of undergraduate accreditation programs many years ago marked the first stage of an ongoing process of upgrading both the quantity and quality of undergraduate dental training centres in this country.

The initial graduate surveys involved all the programs in operation at the time and were of major importance since the information gleaned from these surveys will form the basis for setting standards and practices by which other future programs will be measured. The inclusion of all operating programs required more site visits than had ever been attempted before and the CFDE grant provided the means to carry out this extensive task.

**K. J. Paynter, DDS**  
Saskatoon

The desirability of accrediting postgraduate and graduate programs in specialty fields has been evident for some time. Certainly the benefits of the undergraduate accreditation program during the past 20 years have been enormous and have left their mark, not only on the programs themselves, but also on the graduates of these programs. The reciprocal agreement between the Canadian and American Dental Associations in each recognizing the accreditation programs of the other has provided Canadian graduates with career prospects previously denied them. Perhaps more important, graduates of accredited Canadian schools now have an opportunity for complete national mobility without further examinations, thanks to the recent action of the National Dental Examining Board. The NDEB now offers its certificate without further examination to graduates of accredited Canadian dental schools and, in this respect, has set a pattern which other national certification bodies would do well to emulate. The Examining Board's action, of course, also speaks well for the confidence of the dental community in its accreditation system. As the scope of accreditation expands into the postgraduate field, this confidence will continue to grow as graduates in the specialty areas begin to realize similar benefits to those enjoyed by their undergraduate colleagues.

The initial accreditation of specialist training programs was not without problems. National standards are not developed easily and comparisons between programs is difficult when each program is surveyed by a different team. However, now that some of the problems have been identified, steps are being taken to resolve them. And future problem areas will similarly be attacked and eventually resolved. As we gain experience in this complex field it will become easier to identify and maintain standards of quality and experience while, at the same time, encouraging innovation and experimentation in this highly important area of dental education.

*(Continued on page 359)*



# UNE ÈRE NOUVELLE EN DENTISTERIE CANADIENNE

## Programme reconnu de cours de formation des spécialistes: une ère nouvelle en dentisterie canadienne

K. J. Paynter, DDS  
Saskatoon

L'inauguration d'un programme de cours agréé pour la formation de spécialistes marque une ère nouvelle dans le domaine de la dentisterie canadienne.

Ce progrès remarquable résulte de la contribution du Fonds canadien pour l'enseignement dentaire qui a consacré une subvention de \$20,000 applicable à ce domaine spécifique de la formation professionnelle. La subvention, la plus considérable à être attribuée par le Fonds, a permis au Conseil de l'enseignement de l'Association dentaire canadienne d'inaugurer un programme agréé d'enseignement permanent et spécialisé, dispensé par les écoles dentaires canadiennes, et ce, dans les différentes spécialités reconnues par l'ADC.

Il faut dire que cette entreprise complexe et de grande envergure, qui a nécessité l'étude de 11 programmes distincts dans cinq écoles dentaires, en plus de la responsabilité des programmes réguliers reconnus pour les non diplômés, ne s'est pas réalisée uniquement avec des dollars. Elle a aussi exigé de la part de plusieurs personnes dans un certain nombre de régions une somme de travail ardu. Toute spécialement la contribution de plusieurs spécialistes très occupés et de dentistes généralistes qui furent contraints d'y sacrifier une somme considérable de temps, de revenus et d'efforts afin de mener à terme les études requises.

Cet effort collectif a été couronné de succès. En fait, les résultats obtenus constituent un jalon remarquable du développement des programmes de formation professionnelle des spécialistes dans le domaine de la dentisterie canadienne dont l'impulsion peut être comparée à celle que produisit l'inauguration, il y a plusieurs années, des programmes reconnus pour les non diplômés. En effet, cette initiative marque l'étape initiale d'un processus dont le cheminement a pour effet d'accroître la quantité et d'améliorer la qualité des centres de formation professionnelle des non diplômés au pays.

Les premières études concernant les diplômés portèrent sur tous les programmes en existence à l'époque et priront une importance majeure du fait que les données recueillies constituèrent la base sur laquelle s'établiront les standards et les normes des disciplines en fonction desquels les programmes seront évalués. L'ampleur de l'étude exigea un plus grand nombre de visites sur les lieux que l'étude précédente, mais la subvention accordée par le FCED permit de satisfaire aux exigences considérables de ces obligations.

Le besoin de disposer de programmes reconnus dans le domaine des disciplines spécialisées se manifestait depuis quelque temps déjà. Il ne fait pas de doute que les résultats apportés par les programmes reconnus pour les non diplômés depuis 20 ans ont pris des proportions imposantes et ont favorisé non seulement les programmes eux-mêmes mais aussi les diplômés qui les ont suivis. L'accord réciproque entre les Associations dentaires canadiennes et américaines concerna... les programmes reconnus de part et d'autre a pourvu les diplômés canadiens de perspectives de carrières qui leur étaient inaccessibles dans le passé. Mais ce qui plus est, grâce aux mesures récemment adoptées par le Bureau national des examinateurs dentaires, la compétence des diplômés des écoles dentaires reconnues est maintenant admise, sans examen supplémentaire, par toutes les provinces du pays. Le BNED décerne aujourd'hui son certificat, sans réclamer d'examen additionnel, à tous les diplômés des écoles dentaires canadiennes reconnues. Sur ce point, le BNED a établi un procédé type dont les autres organismes nationaux chargés d'autoriser l'exercice des professions feraient bien de s'inspirer. Les mesures adoptées par le Bureau des examinateurs justifient aussi la confiance que la profession dentaire manifeste à l'égard du système adopté pour reconnaître les unités de valeur (crédits). A mesure que ces procédés s'étendront aux étudiants diplômés, cette confiance ne pourra que grandir, alors que les spécialistes diplômés



constateront qu'ils bénéficient des mêmes avantages que leurs collègues non diplômés.

L'autorisation initiale accordée aux programmes de formation professionnelle des spécialistes ne s'est pas effectuée sans heurt. En effet, il n'est pas facile d'établir des normes, et les comparaisons à établir entre les programmes son assez délicates quant ces derniers sont étudiés par des équipes différentes. Toutefois, maintenant que les caractéristiques de certains problèmes ont été établies, des mesures appropriées sont appliquées pour les résoudre. Les aspects futurs des problèmes seront étudiés de la même manière et ils seront éventuellement résolus. A mesure que notre expérience s'enrichira dans ce domaine complexe, il nous sera plus facile d'établir et de maintenir des normes de qualité et d'expérience tout en encourageant les innovations et l'expérimentation dans ce domaine fort important de l'enseignement dentaire.

Déjà les avantages pour les étudiants diplômés et les diplômés ont pris la forme d'un accord réciproque établi entre les Associations dentaires canadiennes et américaines. En vertu de cette entente, chaque association accepte les programmes avancés de formation des spécialistes dentaires, reconnus de part et d'autre, pour les disciplines considérées comme des branches spécialisées par les organismes respectifs. Cette mesure marque un autre progrès dans les relations entre les professions des deux pays et un exemple additionnel de la confiance et du respect mutuels qui existent entre les deux associations.

Le nouveau programme reconnu, sans lequel l'accord réciproque ADC/ADA n'aurait pu exister, appor-

tera des possibilités plus nombreuses pour la formation des spécialistes en dentisterie au Canada. Les écoles dentaires profiteront certainement de la stimulation qu'il apportera à l'enseignement destiné aux étudiants diplômés et aux diplômés. Il accomplira même davantage. Il profitera aussi aux étudiants diplômés canadiens qui ne seront plus contraints, durant leurs stages d'études aux Etats-Unis, de subsister avec des bourses versées en dollars canadiens. Il ne fait aucun doute que la création d'un plus grand nombre de programmes canadiens contribuera considérablement à augmenter le montant des bourses accordées aux étudiants, comme celles que le FCED accorde à l'enseignement et à la recherche, jusqu'à ce que ces bourses atteignent leur pleine valeur.

En résumé, le Canada a été témoin d'un événement d'une grande portée dans le domaine de la formation des spécialistes en dentisterie: l'avènement d'un système prévoyant des programmes reconnus de formation professionnelle pour les étudiants diplômés et les diplômés. Les résultats de cette mesure sont un gage d'avenir pour la profession et le public.

Cette réalisation n'aurait pas été possible sans la contribution marquante de plusieurs personnes dévouées à cette cause et l'appui financier, généreux et éclairé, du Fonds canadien pour l'enseignement dentaire, celui des dentistes, des associations dentaires, des firmes commerciales et de tous ceux qui concourent à constituer les ressources du FCED.

Le docteur Paynter est président, le Conseil d'enseignement de l'Association dentaire canadienne.

**Accreditation of specialties**

*(Continued)*

One of the benefits that has already resulted in the postgraduate and graduate fields is that a reciprocal agreement has been established between the Canadian and American Dental Associations. Each association has agreed to recognize advanced dental specialty programs accredited by the other in those areas classified as specialties by their respective organization. This is another progressive step in the relationship between the professions in the two countries and a further example of the mutual trust and respect the two national associations have for each other.

The new accreditation program, without which the CDA/ADA reciprocal agreement would have been impossible, will undoubtedly lead to the establishment of greater opportunities in Canada for specialist training in dentistry. Such a development will certainly benefit the schools by virtue of the stimulation derived from postgraduate and graduate education. But it will do even more. It will also benefit Canadian post-

graduate students who will no longer have to live in the United States on Canadian dollar grants during their studies. Obviously then, the development of more Canadian programs will do much to stretch such student support grants as CFDE teaching and research fellowships to gain maximum value.

In summary, a highly significant development in the field of specialist education in dentistry has taken place in Canada within the past year through the establishment of a system of accreditation for graduate and postgraduate programs. The benefits of this action will be felt by the profession and by the public far into the future.

This development could not have taken place without a great contribution from many dedicated people or without the generous and visionary financial support of the Canadian Fund for Dental Education and the support of individual dentists, dental associations, business firms and others who provide the Fund with its resources.

Doctor Paynter is chairman of the Canadian Dental Association's Council on Education.



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### The multiple gutta percha point technique for filling anterior root canals

J. M. Calvert, DDS  
Edmonton

*This article recapitulates the gutta percha multi-point lateral condensation technique for obliterating root canals in anterior teeth.*

*Cet article passe en revue la technique de condensation latérale des pointes de gutta-percha multiples dans l'obturation des canaux radiculaires des dents antérieures.*

The ideal root canal filling should obliterate the entire root canal system, including accessory canals. A canal that is underfilled in any dimension, creating voids or reservoirs, can result in the collection of fluids which provide potential sites of infection. Over-extension of the filling material, particularly when associated with an underfilled canal, may prove unsuccessful due to the irritating effect of the foreign material protruding beyond the apex. Occasionally, root canal sealer is inadvertently forced beyond the apical limits of the canal. The periapical tissues seem to tolerate certain of these materials very well, and in time the sealer is resorbed.

In so far as the vertical extent of the root canal filling is concerned, the alternative limits most often suggested are the cemento-dentinal junction (a constricted area occurring some small distance short of the apex) and the radiographic apex. In the first instance it is often difficult to determine precisely where the cemento-dentinal junction occurs in the canal, and in the

second instance the radiographic apex is not always the true apical limit of the canal. In many teeth, canals exit some distance short of the actual root end. Consequently, a canal filling that appears on the radiograph to terminate at the root apex may in actual fact be over-extended. The custom of limiting the vertical dimension of a root canal filling to within 0.5 to 1 mm short of the radiographic apex is generally considered good practice.

A sound knowledge of pulpal morphology can be helpful in obtaining acceptable results. For example, the canals of maxillary anterior teeth, particularly the lateral incisors and cuspids, tend to be greater in dimension in the labiolingual plane. If this anatomical fact is disregarded during the treatment procedure, a root canal filling that appears adequate when viewed radiographically from the labial aspect might in fact prove deficient if one were able to view it from a lateral direction.

A number of techniques have been developed for filling root canals. Many are useful and one should be acquainted with a variety of methods to ensure a degree of flexibility in the approach to treatment. The multiple gutta percha point technique described here is relatively simple and has a proven success rate. It derives its name from the use of a master point, supplemented by a number of tightly condensed lateral points. The use of a single point for filling most anterior root canals is not advisable, as one cannot rely on the root canal sealer to fill any resultant gaps occurring in the canal.

With improper use of the lateral spreader, there is a risk of splitting the root; but in my experience this has never presented a real problem. Vertical condensation is an alternative approach to filling root canals, but it is a more difficult procedure than lateral condensation.

Whatever technique is employed, the procedure will be simplified and the final results enhanced if proper attention is given to the access opening and canal preparation. The finished opening should resemble the mouth of a funnel and be of adequate size to accommodate the master point and several supplementary points (Fig 1). The canal itself must be tapered, free of constrictions and uneven dentine walls, and specifically designed to receive the filling material of choice.<sup>1</sup>

The two most commonly used root canal filling materials are silver cones and gutta percha points. Gutta percha offers certain advantages in the filling of an-



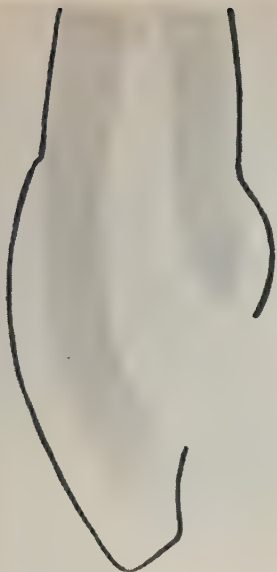


Fig 1 Funnel shaped access opening provides ample room to accommodate the master point and several supplementary points.

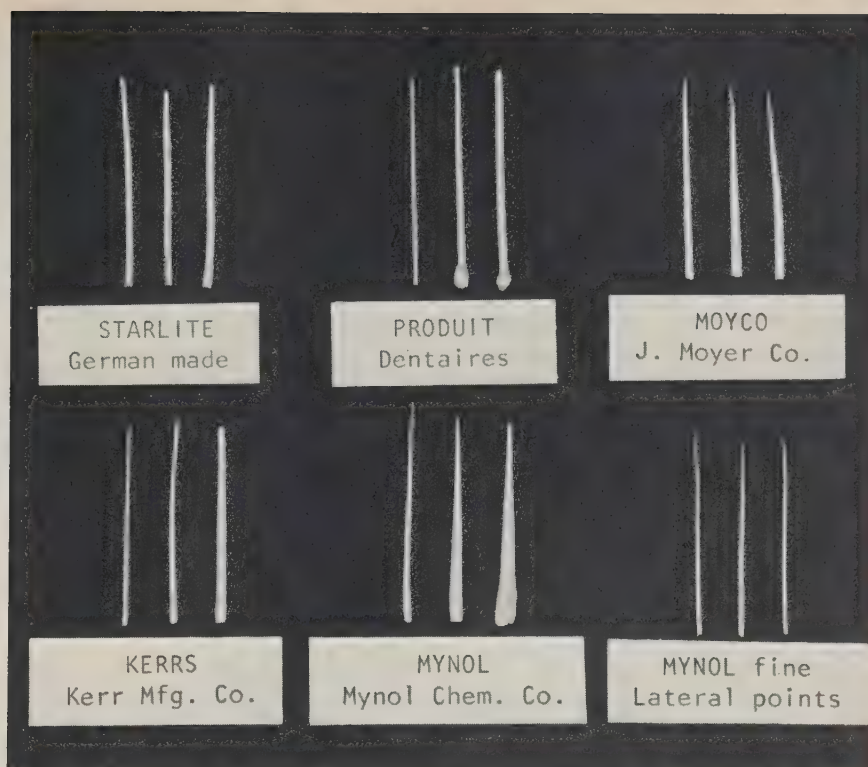


Fig 2 An assortment of gutta percha points offering a wide range of shapes and sizes to meet the anatomical requirements of most canals.

terior teeth. Its plastic nature allows for better lateral condensation. Gutta percha points are more easily cut back beyond the neck portion of the tooth prior to filling the access opening. If necessary, they can be easily removed if the occasion arises. The material is more amenable than others to preparation and placement of dowels. Root resection and retrograde fillings are simplified when gutta percha has been employed as the filling material.

Silver cones are useful in narrow canals or canals with extreme curvatures where pressure is required to seat the point to the desired length.

Gutta percha points come in a variety of shapes and sizes. Certain brands are marketed in small, medium and large sizes. Others are numbered to correspond to root canal instrument sizes, but this relationship is not always exact; indeed, the points of the same size often vary in taper and dimension. One should become familiar with the different points available and stock a variety of brands to meet the varying anatomical conditions in root canals (Fig 2).

When selecting the master point, it is wise to consider the general size and shape of the root canal to be filled. Broadly speaking, root canals are of two basic shapes — those which taper rather markedly from the pulp chamber to a narrow apex and those in which the canal walls are less convergent. Common sense dictates that a thick, blunt-ended point is not likely to fit a tapered canal with a narrow apical third.

Having selected a suitable point, the next step is to test its fit in the canal. The working length measurement of the tooth, established prior to preparation of the root canal, is transferred to the point. The point is grasped with cotton pliers at this measured length and

inserted into the canal until the pliers contact the incisal edge of the tooth. The point should resist any effort to seat it further. If it does advance further, the point is withdrawn and the amount of the over-extension removed with scissors, or a point of a larger size is selected. If, on the other hand, an attempt to seat the point fails because it is obviously too large, one of a smaller size or different shape is selected.

The point finally selected must fit snugly in the canal, especially in the apical third region, requiring some effort to withdraw it. It is good practice at this time to examine the gutta percha for pressure marks to ensure that it is not binding at some point short of the apical region. The point, while still in the canal, is etched with a warm instrument, flush with the incisal edge of the crown, as a guide mark for future length control.

A radiograph is now taken of the tooth with the master point to assess its vertical dimension and its adaptation, especially in the apical third (Fig 3A). Voids coronal to the apical third area need not cause concern since they can be obliterated by supplementary points. If the point is too long it can be reduced. For a point that seems too short, there are three possible solutions: further instrumentation, especially in the apical region, to accommodate the existing point; selecting another point of a smaller size or different shape; or tapering the apical third of the existing point by rolling it with a warm spatula on a glass slab (Fig 4). After re-shaping, the softened point is dipped in alcohol to restore its rigidity before re-insertion.

An instrument essential to the success of the multi-point technique is the lateral spreader. The long thin blade of this instrument is inserted into the canal along-



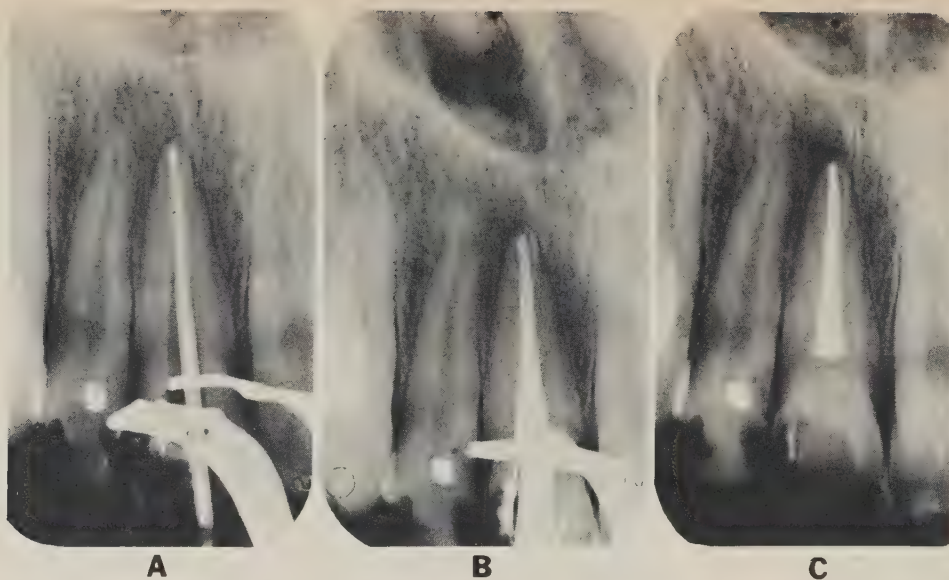


Fig 3 A, master point in place. B, lateral points have been added. C, filling material cut back beyond neck to tooth and access opening filled with silicate cement.

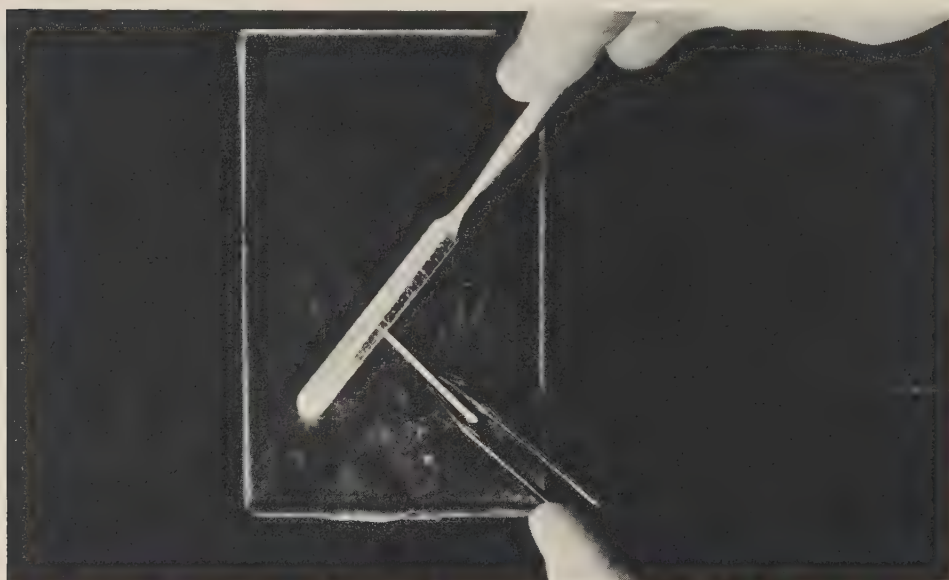


Fig 4 Reshaping the master point by rolling with a warm spatula on a glass slab.

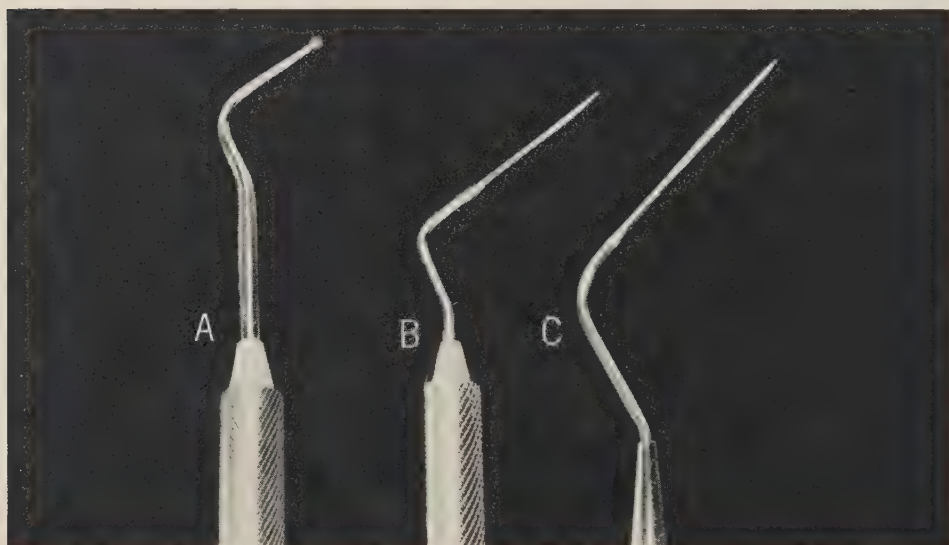


Fig 5 A, Starlite M-G 32 long shanked endodontic curette. B, Starlite D 11 lateral spreader. C, Kerr No. 3 lateral spreader.



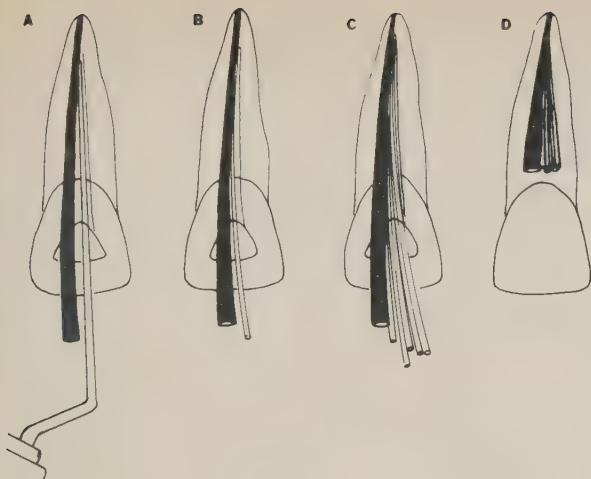


Fig 6 A, lateral spreader inserted alongside the master point and exerting lateral pressure. B, the spreader has been removed and a lateral point inserted. C, the canal completely filled with points. D, the filling material cut back beyond the neck portion of the tooth.

side the existing points. Lateral pressure is exerted to condense these points and at the same time provide a pathway for additional points. Excess vertical pressure with the lateral spreader should be avoided for fear of splitting the root or forcing filling material beyond the apex. Two spreaders in common use are the Kerr No. 3 and the Starlite D 11 (Fig 5). The latter has a slightly thinner blade for use in narrow canals.

Root canal sealers serve little purpose when used improperly. They are not intended to fill extensive voids in the canal. The bulk of the root canal must be filled with gutta percha, with the sealer obliterating minor discrepancies and filling fine lateral canals. Consistency is important. A thin, watery mix is worthless, while too thick a mix may inhibit the progress of the gutta percha point along the canal. A smooth creamy mix is ideal.

A root canal is ready to be filled<sup>2</sup> when the canal is prepared to an optimum size and shape, the tooth is comfortable, there is no evidence of a fistulous tract, the canal is dry and a negative bacterial culture has been obtained.

### Filling the canal

The master point is evenly coated with root canal sealer and carefully inserted into the canal until the guide mark is flush with the incisal edge of the crown. A too vigorous insertion is apt to force sealer beyond the apex. Once in position, slight pressure may be applied to seat the point more firmly in place. The lateral spreader is inserted into the canal and used in the manner previously described (Fig 6A). The spreader is withdrawn and a lateral point coated with sealer is inserted in its place (Fig 6B). The process is repeated until no further points can be added (Fig 3B, 6C). Certain canals will accommodate as many as a dozen or more points before they can be considered adequately sealed (Fig 7).



Fig 7 A tooth with the master point and several lateral points in place.

Excess filling material is removed with a heated curette. In order to avoid discoloration of the tooth crown the filling material must be cut back beyond the neck of the tooth (Fig 6D). Special long-shanked endodontic curettes (Fig 5A) and round endodontic burs are used for this purpose. The pulp chamber is wiped clean of sealer and other debris with a cotton pellet dipped in alcohol or xylene. The access opening is then filled with a light shade of silicate cement or plastic material. The mix should be of a fairly heavy consistency and packed into the opening with endodontic pluggers. The resultant filling is smoothed with sandpaper discs and tested with articulating paper. A final radiograph is then taken (Fig 3C, 6D).

### Summary

The multiple gutta percha point technique for filling anterior root canals has been described. The success of this procedure depends on a sound knowledge of pulpal morphology, a familiarity with the various gutta percha points available, and a properly prepared root canal and access opening.

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## Women dentists: Some circumstances about their choice of a career

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*A questionnaire was mailed to all women dentists in the United States to ascertain the circumstances that induce women to choose a career in dentistry. The replies showed why US dentistry is predominantly a man's occupation, while in other countries women are more readily accepted in the profession. Also, it was found that the majority of women dentists in the United States had parents, relatives or friends who were dentists and had influenced their choice of a career.*

*On envoya un questionnaire aux femmes dentistes à travers les Etats-Unis pour mettre en évidence les facteurs qui poussent ces femmes à choisir cette carrière. Les réponses démontrèrent pourquoi la dentisterie, aux E-U, est avant tout une profession réservée aux hommes alors que dans d'autres pays on accepte beaucoup plus facilement les femmes au sein de notre profession. On découvrit aussi que, dans la majorité des cas, les femmes qui étaient devenues dentistes aux Etats-Unis avaient choisi cette carrière car elles avaient des parents, de la famille ou des amis qui étaient dentistes et qui avaient plus ou moins influencé leur choix.*

The rarity of women dentists in the United States mirrors and reinforces the conception of dentistry as a man's occupation and its duties as masculine. In all other western countries there are proportionately more women dentists.<sup>1-4</sup> Tradition seemingly accounts for the rarity of women dentists in the United States, rather than that they are, in some way, unfit for the profession.

Given the tradition in the United States of dentistry as a man's occupation, it would be expected that there would be unique circumstances leading to a woman's choice of this career. For obtaining information relevant to the circumstances of the choice of dentistry (in addition to other information about their careers and problems of combining career with family), a questionnaire was mailed in 1968 to professionally inactive and active women dentists.

### Description of the study

The questionnaire consisted mainly of questions with the likely answers printed for checking. There were few questions requiring written answers because such questions tend to reduce the number answering a mailed questionnaire.

The potential respondents were initially drawn from the 1967 *Directory of the American Dental Association*, using feminine-sounding first names as a basis for selection. Other names were obtained from lists furnished by the Association of American Women Dentists and the Sorority of Women Dentists. Additions were also made of names given by respondents who answered the questionnaire.

Those who wrote back that they were male and those reported as deceased were eliminated, leaving a total of 1,588 as the estimated number of women



dentists. For 205 undelivered questionnaires, no new addresses were found. A follow-up letter and another copy of the questionnaire were sent to all others if there was no response to the first mailing. If there was still no response, a third letter, without a questionnaire, was sent. A total of 803 women dentists answered the questionnaire.

The exact response rate cannot be determined because there is no means of knowing how many of the non-respondents were men or were deceased. If based on the estimated 1,588 women dentists, the response rate is 51 per cent. If the 205 undelivered questionnaires and the 168 non-responding persons with first names the same as or similar to those identified as men are subtracted, it is 66 per cent.

One hundred and twenty-four respondents had attended a foreign dental school; all but 18 of them had also graduated eventually from a dental school in the United States or Puerto Rico. Because women are more accepted in dentistry in many other countries, information about the selection of dentistry given by the graduates of foreign schools was compared to that given by those who had graduated only from dental schools in the United States and Puerto Rico.

All differences discussed in this article are statistically significant. The standard for significance was that the difference could have arisen by chance in 5 per cent or less of samples drawn from all countries. The chi square test was used.

**The decision to become a dentist**

*The age of decision*—Of those who graduated from a US dental school only, one-half decided to become dentists after entering university (Table 1). The graduates from foreign dental schools tended, on the average, to make this decision at an earlier age. Perhaps the greater acceptability of women dentists in other countries increased the likelihood of their choosing the profession at a younger age.

Yet, if acceptability tends to encourage an earlier decision, there is little evidence that it does so for men. Available statistics for men (dental school applicants<sup>5</sup> dental students<sup>6</sup>) show only small and inconsistent differences from the women dentists in the distribution of answers about the age of decision. However, the lack of large or consistent differences between the men and women may be due to differences in question wording.

*Other occupations considered*—The other occupation most likely considered by the women dentists, as by men dentists, was medicine. Among the graduates of US schools only, half reported considering it (often other occupations in addition were considered). One-third reported that they considered other occupations but not medicine (Table 2). These other choices were mainly conventional ones for women, such as nurse, dental hygienist, teacher.

That other occupations were considered by so many of the respondents (84 per cent) may well be typical of undergraduate students.<sup>7</sup> Yet, some part of this high percentage may reflect a greater instability of choice

**Age when respondents first decided to become dentists** **Table 1**

| Decision made              | Graduates of<br>US dental<br>schools only | Graduates of<br>foreign dental<br>schools* |
|----------------------------|-------------------------------------------|--------------------------------------------|
|                            | %                                         | %                                          |
| Before high school         | 16                                        | 14                                         |
| At high school age         | 31                                        | 48                                         |
| At university age          | 39                                        | 36                                         |
| After university age       | 14                                        | 2                                          |
| No. answering the question | 672                                       | 125                                        |

\*Includes those who also went to a dental school in the United States

**Occupations considered or preferred to dentistry** **Table 2**

|                                                  | Graduates of<br>US dental<br>schools only | Graduates of<br>foreign dental<br>schools |
|--------------------------------------------------|-------------------------------------------|-------------------------------------------|
|                                                  | %                                         | %                                         |
| Considered:                                      |                                           |                                           |
| Medicine, plus any other<br>occupational choices | 53                                        | 68                                        |
| Health occupations, but not<br>medicine          | 11                                        | 6                                         |
| Other occupations than health                    | 20                                        | 14                                        |
| Dentistry only                                   | 15                                        | 13                                        |
| Preferred:                                       |                                           |                                           |
| Medicine plus any other<br>occupational choices  | 22                                        | 32                                        |
| Health occupations, but not<br>medicine          | 2                                         | 3                                         |
| Other occupations than health                    | 7                                         | 4                                         |
| Dentistry only                                   | 69                                        | 62                                        |
| No. answering the question                       | 661                                       | 118                                       |

because dentistry is considered a man's occupation in the United States. Another study has shown evidence of this among women interested initially in entering a man's occupation. The study reported<sup>8</sup> that first year women students who chose professions like medicine, dentistry or law were more likely to shift to another occupational category by their final year than were men who chose these occupations. The greatest stability of occupational choice was among the women students initially selecting education, certainly a traditional choice for university-educated women in the US.

*The occupation preferred*—The stereotype of the dentist as a would-be physician does not fit most of the women dentists. Although 53 per cent had considered medicine, a much smaller percentage preferred it to dentistry—22 per cent of the graduates of US schools only and 32 per cent of the graduates of foreign schools. This is not to say that these percentages of would-be physicians are small but merely that the preference for medicine was not typical. About two-thirds reported they had preferred dentistry to all other occupations considered.



Persons talked to about interest in dentistry Table 3

| Person                     | Graduates of<br>US dental<br>schools only<br>% | Graduates of<br>foreign dental<br>schools<br>% |
|----------------------------|------------------------------------------------|------------------------------------------------|
| Father                     | 77                                             | 73                                             |
| Mother                     | 70                                             | 81                                             |
| Brother                    | 25                                             | 22                                             |
| Sister                     | 4                                              | 24                                             |
| Other male relative        | 13                                             | 8                                              |
| Other female relative      | 9                                              | 13                                             |
| Female friend              | 21                                             | 26                                             |
| Male friend                | 21                                             | 15                                             |
| School counsellor          | 17                                             | 6                                              |
| Family dentist             | 33                                             | 15                                             |
| Other male                 | 12                                             | 0                                              |
| Other female               | 1                                              | 0                                              |
| Did not talk to anyone     | 4                                              | 5                                              |
| No. answering the question | 667                                            | 124                                            |

*Family members and friends who were dentists*—Since so few American women actually become dentists, those that do would have to have more than average social exposure to dentists for the idea of dentistry to occur in the first place. The findings support this hypothesis. Fifteen per cent of the women dentists reported that either or both parents were dentists and in half of these families another relative was also reported to be a dentist. An additional 18 per cent reported that a brother, sister or other relative, but neither parent, was a dentist when they decided on the profession. Men selecting dentistry seemingly have less need for dentists in their social orbits, given that dentistry is almost solely a man's occupation. A smaller percentage of practising male dentists in a nation-wide survey<sup>9</sup> and first-year dental students<sup>6</sup> reported that someone in the immediate family or another relative was a dentist.

In particular, the immediate presence of a woman dentist seems to be a direct influence. Three per cent of the respondents said their mothers were dentists. Seven per cent reported other female relatives were dentists when they decided to enter the profession. Eight per cent reported having a woman friend who was a dentist or a dental student and had influenced them to choose dentistry. Although these women dentists were reported by a minority of the respondents, they take on significance in the perspective of the very small chance that the average person in the United States has (regardless of his education or profession) of just hearing about a woman dentist, let alone knowing one.

*Persons with whom the interest in dentistry was discussed*—Parents were the most likely persons with whom the interest in dentistry was discussed. More than three-quarters of the respondents had discussed their interest with one or both parents (Table 3). Among the graduates of US schools only, the family dentist ranked after parents but was indicated by only one-third. Reported by even smaller proportions were female friends, male friends and brothers. Other relatives were cited in still lesser proportions.

Persons talked to outside the family seemingly were often selected because they were already in dentistry. Forty-three per cent of the male and female friends with whom there was discussion, and whose occupation was given, were dentists or dental students.

The age at which the decision was made to become a dentist had some association with the kinds of persons with whom there was discussion. The older the age of decision, the more likely there had been discussion with male and female friends. The older the age of decision, the less likely there had been discussion with parents; yet, even those who decided on dentistry when in their twenties or older were more apt to have discussed the matter with one or both parents than with any other person. It may be that the need for financial assistance from parents continues into the twenties or older, but it is also likely that such weighty decisions as occupational choice include discussion with parents because of the continuing importance women in our society may attach to parents' views about such matters.

Those who graduated from foreign schools differed in one respect from their counterparts who graduated from US schools only; they were more likely to have had discussions with their mothers and their sisters. This difference exceeded any values that might have been due to sampling fluctuation. It may imply that women in the immediate family exert more influence on occupational choice in foreign countries than in the United States.

*Person of most influence*—In answer to the question of who had been most influential on the respondents' decision of going into dentistry, most frequently named were fathers, then mothers, except for those who had decided on dentistry after they had left university.

Person of greatest influence on decision of choosing dentistry Table 4

| Person*                      | Graduates of<br>US dental<br>schools only<br>% | Graduates of<br>foreign dental<br>schools<br>% |
|------------------------------|------------------------------------------------|------------------------------------------------|
| Father                       | 25                                             | 19                                             |
| Mother                       | 13                                             | 17                                             |
| Parents                      | 6                                              | 3                                              |
| Brother                      | 5                                              | 7                                              |
| Sister                       | 4                                              | 1                                              |
| Husband                      | 4                                              | 1                                              |
| Other male relative          | 4                                              | 4                                              |
| Other female relative        | 2                                              | 2                                              |
| Female friend                | 5                                              | 8                                              |
| Male friend                  | 8                                              | 6                                              |
| School counsellor            | 3                                              | 2                                              |
| Family dentist               | 7                                              | 9                                              |
| Dental employer              | 2                                              | 2                                              |
| Other male                   | 4                                              | 0                                              |
| Other female                 | 1                                              | 2                                              |
| Myself; no one influenced me | 9                                              | 18                                             |
| No. answering the question   | 512                                            | 88                                             |

\*Respondents were asked to give the person of greatest influence. When more than one person was given, the answer was not coded, with the exception of "parents"



Among this group the most frequently named were male friends or husbands. For the total group, a minority, 40 per cent, named either parent, and only 7 per cent or less named any other person (Table 4).

In a study of male applicants to dental schools,<sup>5</sup> the family dentist was most frequently named as influencing the choice of dentistry; either parent was noted by a smaller proportion. In addition, these applicants were more likely than the women dentists to state that they made the decision on their own. These differences could be due to differences in question form and in the kinds of sample studied (students and applicants compared to professionals). However, there is evidence also from two other studies that men may be more independent of family influence on occupation choice; or more likely they claim to be free of such influence.<sup>10,11</sup>

Reactions of others to the interest in becoming a dentist

A majority of the women who graduated only from US schools reported the approval by each person with whom there had been discussion about their interest in dentistry (Table 5). For instance, 80 per cent had the father's approval; 70 per cent, a brother's. Only a minority reported indifference or disapproval by each person consulted. School counsellors were the most likely to disapprove (25 per cent) but this ranking must be taken with caution because of the possible distortions of memory and the potential response and sampling errors.

Among the graduates of foreign schools, even more reported approval, probably reflecting the greater acceptance of women dentists in other countries.

The high percentage of approval was reported by women who had become dentists. We do not know what the result might have been if similar data could be collected from women who first thought about den-

tistry and then decided against it. That is, there is no available evidence about whether women interested in dentistry were diverted from it because of the disapproval of others.

Generally, women who chose dentistry tended to have relatives and friends more accepting of their choice than would be expected. This does not mean that there were no expressions of disapproval. However, these tended to be mainly from others not sought out for discussion about dentistry. For instance, women dental students interviewed for another study reported that those with whom they had discussed their interest in dentistry—family, friends, dentists—mainly approved, but they also reported that other persons had expressed disapproval, sometimes very strongly.

The instances of disapproval which the women dentists reported were not necessarily because dentistry is considered a man's occupation. For example, written comments indicated that parents sometimes disapproved because they felt a professional career of any kind might decrease a woman's chances of marriage or because of the high cost of a dental education.

Expected satisfactions and dissatisfactions

*What appealed about dentistry*—The question "When you first decided to become a dentist, what appealed to you the most about such a career?" most frequently elicited the response "Independence; to be one's own boss." Ranking next was "opportunity to serve the public" (Table 6). University students<sup>7</sup> tended to place high the objective of serving society or being helpful, and low, freedom from supervision. Moreover, male dental students<sup>12</sup> tended to rank service to people first as an objective (although there was reason to look beyond this ranking for judging the true objectives of dental students). Under any circumstances, that independence ranked first among the women dentists was unexpected. From comments they wrote, it is known that evaluations of objectives achieved in the actual practice of dentistry were sometimes mixed with objectives supposedly looked forward to initially; consequently, the confounding of achieved with wished-for satisfactions may account for the ranking of items which appealed (Table 6).

Reactions of others with whom graduates of US dental schools discussed decision of becoming a dentist Table 5

| Person                | Per cent reporting the person's reaction as |             |              | Number who checked the person's reaction |
|-----------------------|---------------------------------------------|-------------|--------------|------------------------------------------|
|                       | approval                                    | disapproval | indifference |                                          |
| Father                | 80                                          | 13          | 6            | 453                                      |
| Mother                | 77                                          | 13          | 10           | 452                                      |
| Brother               | 70                                          | 11          | 19           | 148                                      |
| Sister                | 82                                          | 6           | 12           | 146                                      |
| Other                 |                                             |             |              |                                          |
| male relative         | 77                                          | 16          | 7            | 75                                       |
| Other female relative | 77                                          | 22          | 2            | 64                                       |
| Female friend         | 69                                          | 17          | 14           | 79                                       |
| Male friend           | 67                                          | 22          | 11           | 129                                      |
| School                |                                             |             |              |                                          |
| counsellor            | 61                                          | 25          | 14           | 111                                      |
| Family dentist        | 86                                          | 8           | 6            | 204                                      |
| Other male            | 88                                          | 8           | 4            | 77                                       |
| Other female          | 81                                          | 19          | 0            | 16                                       |

*What appealed least about dentistry*—Asked what appealed least about becoming a dentist at the time that the profession was chosen, nearly one-third stated that they had not thought about any negative aspects of dentistry or could not remember thinking of any. Some added that once they chose the profession, only the positive aspects were thought about. Twenty-five per cent of the total group did not answer the question at all, and it is probable that many of these also had not thought of or could not remember anything negative, though having to write down the answer may have reduced the response. In general, even when negative aspects were noted, there was indication from the comments that occupational choice, at least for the women dentists, ranged around the positive much more than the negative possibilities of the profession.

Graduates of the US schools commented most frequently about the rarity of women in dental schools



**What appealed about dentistry at the time of the decision to become a dentist**

**Table 6**

| Items listed:                                 | Appealed most % | Appealed second % | Appealed third % | Total: appealed 1st, 2nd or 3rd % |
|-----------------------------------------------|-----------------|-------------------|------------------|-----------------------------------|
| Independence: to be one's own boss            | 33              | 16                | 14               | 63                                |
| Flexibility of hours of work                  | 7               | 17                | 14               | 38                                |
| Opportunity to serve the public               | 20              | 17                | 11               | 48                                |
| A steady and good income                      | 4               | 11                | 15               | 30                                |
| Steady demand for one's professional services | 3               | 5                 | 7                | 15                                |
| Opportunity to work with one's hands          | 10              | 12                | 10               | 32                                |
| Prestige of the profession                    | 7               | 7                 | 14               | 28                                |
| Intellectually stimulating kind of work       | 10              | 12                | 13               | 35                                |
| Other: the answer was written in              | 5               | 2                 | 2                | 9                                 |
| No. answering the question*                   | 678             | 619               | 574              |                                   |

\*Graduates of US dental schools only were combined with graduates of foreign dental schools because the differences in distribution of answers were slight (7 per cent or less) and all within the range of random sampling fluctuations

**What appealed least about dentistry at the time of the decision to become a dentist**

**Table 7**

| Item written in*                                                                | Graduates of US dental schools only % | Graduates of foreign dental schools % |
|---------------------------------------------------------------------------------|---------------------------------------|---------------------------------------|
| Problems of family versus career                                                | 3                                     | 2                                     |
| Women among men in dental school or the profession                              | 16                                    | 2                                     |
| Length of time in dental school                                                 | 12                                    | 1                                     |
| Expense of dental school, and a practice                                        | 13                                    | 6                                     |
| Conditions of dental work: isolation, hours, standing                           | 11                                    | 10                                    |
| Mechanical, repetitious, boring work                                            | 3                                     | 12                                    |
| Management of a practice                                                        | 3                                     | 9                                     |
| Low (or lower) prestige of dentist                                              | 2                                     | 6                                     |
| Negative aspects of patients: negligence of teeth, unappreciative, bad breath   | 9                                     | 7                                     |
| Other: taking particular courses, difficulty of dental work, doing oral surgery | 31                                    | 39                                    |
| "Nothing"                                                                       | 33                                    | 33                                    |
| No. answering the question                                                      | 542                                   | 82                                    |

\*If a respondent wrote in more than two items, other than about patients, only the first two mentioned were coded. Only one item about patients was coded for each respondent

and in the profession; yet even these observations were written by only 16 per cent. As might be expected, such statements were made by relatively fewer graduates of foreign dental schools (Table 7). Statements about the length of time and expense of dental school were the next most frequent among the graduates of US schools only, and again were made by relatively fewer graduates of foreign schools. The only other kind of comment made to any great extent (by 11 per cent of the graduates of US schools) was about the conditions of dental work, such as its isolation and the hours of standing.

A small percentage wrote negative comments about patients. Surprising was the small number expressing concern about potential problems of combining career with family life.

### Occupations recommended by the women dentists

Having chosen an occupation which is very unusual for women in the United States, the respondents might be expected to be free of conventional thinking of occupations as masculine or feminine. To measure conventional versus unconventional thinking about occupational choice, the respondents were asked which occupations they would recommend to an 18 year old girl and to an 18 year old boy, disregarding personal interest or abilities. A difficulty in getting answers to such questions is that professional people tend to favour the principle of self-determination in

occupational choice. The questions asked were formulated with a view to overcoming such a reservation (the question wording included "regardless of ability and interest"), but failed in that 14 per cent did not answer or wrote comments stating their reservations about recommending any occupations. Many others who did recommend occupations also added comments indicating their reservation about doing so. It can be inferred that many women dentists hold to the principle of self-determination in occupational choice. Yet, they tended to limit their application of the principle within traditional ideas of men's and women's occupations.

Two-thirds of the respondents who made occupational recommendations checked dentistry for an 18 year old girl. Forty per cent checked medicine. However, they were more likely to recommend dentistry (75 per cent) or medicine (72 per cent) for a boy (Table 8). Thus, they tended to recommend the two professions to a girl more than might be expected, but at the same time tended to favour them more for a boy than a girl, showing in this respect the influence of the traditional consideration of these as male occupations.

It was particularly their other occupational recommendations that the women dentists conventionally divided by sex. For instance, 72 per cent recommended nursing or dental hygiene for a girl and 9 per cent recommended either for a boy, though recommendation of dental hygiene was probably restricted by knowledge that there are few men in the occupation. Sixteen per cent recommended that a girl might consider being a business executive or engineer (had engineer been coded separately, the percentage for it alone would be much less) and 61 per cent recommended, for a girl, social work or high school teaching. In comparison, many more (70 per cent) urged a boy to



| Occupation                           | For the consideration of an 18 year old girl % | For the consideration of an 18 year old boy % |
|--------------------------------------|------------------------------------------------|-----------------------------------------------|
| Dentist                              | 65                                             | 75                                            |
| Physician                            | 40                                             | 72                                            |
| Nurse or dental hygienist            | 72                                             | 9                                             |
| Business executive or engineer       | 16                                             | 70                                            |
| Social worker or high school teacher | 61                                             | 33                                            |
| Sales person                         | 14                                             | 20                                            |
| No. who recommended occupations      | 700                                            | 694                                           |

consider being a business executive or engineer and many less (33 per cent) recommended that he consider social work or high school teaching.

These findings do not necessarily mean that a high percentage of the respondents disapproved of women becoming engineers or business executives or of men becoming nurses. In another study,<sup>13</sup> two-thirds of women undergraduate students did not disapprove of women being engineers or business executives. The high proportion would be consistent with the principle of self-determination in occupational choice held by persons with a higher education. However, the women dentists did not tend to recommend for women the same occupations which were approved by the majority of women undergraduate students. Approval and recommendation are separate approaches to occupational choice. Incidentally, however, the rank order of the women undergraduate students' approval of women being in certain occupations was about the same as the women dentists' recommendation of the occupations, both approval and recommendation being lowest for women as engineers or business executives.

Some conclusions

The women dentists do not seem to differ much from men or other women in the kinds of persons with whom they discuss their occupational choice. Unlike men, they are more apt to discuss their choice with their parents. Of course they are more likely than persons in other occupations to seek out dentists for advice. Like male dentists, they are also much more apt to come from families in which there are dentists. Most reported the approval of family members and other persons with whom the choice was discussed. The women dentists seem, therefore, to come from families more approving of the choice of a traditionally masculine occupation than would be expected. At the same time, it would follow that they need not assert much independence from parental or general social disapproval.

Seemingly more revealing is the fact that most of their recommendations of occupation are quite clearly sex-delineated. What is implied from this and other

findings is that the average woman dentist makes her choice of an unusual occupation by some accident of experience or because there are dentists in the family and social circle and that this choice, in most cases, is not part of an overall rejection of the usual kinds of things women are expected to do in American society. In fact, another study<sup>13</sup> reports that two-thirds of women selecting careers usually considered masculine agree with the view that "it is more important for a woman to help her husband's career than to have one herself," — certainly an acceptance of a traditional approach for women. And the women dentists show traditional approaches to occupation and family in many other facets of their careers — such as moving with changes in their husband's jobs, reduction in time at work while the children are young.<sup>14, 15</sup> It is mainly in their occupational choice that they seem unconventional.

Another unconventional characteristic of women dentists is that they are more likely to select independence than any other thing about dentistry as having appeal when they first decide on the profession. Generally, women are not expected to assert independence. Yet, even this factor, together with the flexibility of hours of work, may be emphasized because it is an aspect of the practice of dentistry which allows them to meet the demands of family life.

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# Expectations of "sick role" exemptions for dental problems

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*The degree of expected exemptions from normal tasks at home and at work for medical and dental health problems was investigated using a sample of upper and lower class individuals. Exemptions from normal activities are expected for both types of problems, with expectation of greater exemptions for medical problems. Upper class individuals tend to expect fewer exemptions for both medical and dental problems. Lower class respondents with dental problems expect significantly greater exemptions from normal tasks than do upper class individuals.*

*L'auteur étudie la fréquence et l'ampleur des exemptions de tâches normales à la maison et au travail occasionnées par des problèmes médicaux et dentaires à partir d'un échantillonnage composé de sujets de classes inférieure et supérieure (re: formation académique). L'exemption des activités normales résulte des deux problèmes invoqués, avec une prédominance marquée pour les problèmes médicaux. Les sujets de classe supérieure ont tendance à présenter moins d'exemptions occasionnées à la fois par les problèmes médicaux et les problèmes dentaires. Les sujets de classe inférieure sont enclins à réclamer des exemptions plus considérables du travail normal en présence de problèmes dentaires.*

When illness prevents an individual from adequately carrying out normal activities, technologically progressed societies provide alternate activities for him. That advanced cultures make allowances for those who cannot function to capacity was noted by Sigerist<sup>1</sup> who termed this the "special position of the sick." By providing a special position, society has

given the ill person a culturally prescribed role with certain behavioural expectations. Parsons<sup>2</sup> has called the behaviour associated with this position the "sick role" and it occurs when individuals are unable to perform normal tasks adequately.

As a socially instituted role, there are certain specified rights and obligations. The individual is conditionally granted exemption from his normal role and task duties. The conditions of this exemption are that he view illness as an undesirable state and therefore try to get well and to cooperate with those who are responsible for his welfare. The specific features of the sick role as they have been stated by Parsons<sup>3</sup> are:

1. The incapacity is interpreted as beyond the patient's power to overcome by the process of decision making alone; in this sense he cannot be held responsible for his incapacity. Some kind of "therapeutic" process, spontaneous or aided, is conceived to be necessary for recovery.

2. Incapacity defined as illness is interpreted as a legitimate basis for exemption of the sick individual, to varying degrees, in many varying ways and for varying periods of time according to the nature of his illness, from normal role and task obligations.

3. To be ill is to be in a partially and conditionally legitimated state. The essential condition of this legitimation, however, is the recognition by the sick individual that to be ill is inherently undesirable, that he therefore has an obligation to try to "get well" and to cooperate with others to achieve this end.

4. So far as spontaneous medical forces, the *vis medicatrix naturae*, cannot be expected to operate adequately and quickly, the sick person and those with responsibility for his welfare . . . have an obligation to seek competent help . . . to help get him well.

In the evaluation made by the individual or others as to whether or not a person is ill, the important issue is whether his symptoms warrant the adoption of the "sick role." In North America dental caries is not defined by the public as a disease. Since it generally does not interrupt the normal routine of life it is considered normal and the sick role is not played. There are, however, certain dental problems which may be defined as illness with the accompanying exemption from role and task obligations. This study was therefore undertaken (1) to find out if the expected sick role exemptions are applicable to selected dental problems, (2) to compare expected sick role



exemptions between selected medical and dental problems, and (3) to explore the influence of social class on expected exemptions.

### Method

Seven diseases were selected to determine whether the expectations of sick role behaviour are universal or if there is a different order of response between medical and dental problems. These diseases were divided into medical and dental groups. The medical problems were ulcers, migraine headache, heart condition, arthritis and mumps. The dental conditions were trench mouth (Vincent's infection) and impacted wisdom tooth. They were selected from a longer list because evidence from a pilot study indicated they varied widely in both severity and chronicity. This sampling procedure was employed (1) to minimize the bias which may appear by comparing only two specific diseases and (2) to ensure that basic features of the diseases used in the study are sufficiently well known. Thus it is possible to be reasonably certain respondents are referring to the same event while still allowing sufficient latitude to provide for a variety of response. To further check uniformity of knowledge, respondents to the main study were also asked to list the symptoms of the disease under question.

As the concern of this study is expected response to health problems, the sample was drawn from a healthy population. It was felt there would be an inherent bias if people were selected from a population seeking health care. We therefore avoided using hospitals or clinics as a sampling frame. Two random samples were selected from groups not associated with any health institution: the first, to ensure upper class representation, came from university teaching faculty members; the second was randomly selected from the population in three lower class urban neighbourhoods.

Sixty of the 73 faculty respondents returned their questionnaires for an overall response rate of 82 per cent. This high rate was accomplished by personal contact with the subjects.<sup>4</sup> Eighty lower class families were contacted and 53 persons responded, giving a response rate of 66 per cent. In all, there were 113 respondents to the survey. A summary of the major characteristics of the sample is shown in Table 1.

The sample tended to be slightly over-represented by younger people, but the average age of the respondents was 44.6 years. The division by sex was equal in the upper class, and the lower class had slightly more female respondents than males. There were no Blacks in the upper class sample and 22 in the lower class respondents. About one-third lived singly and two-thirds lived with their spouses. There were 38 Catholics; 21 in the lower class and 17 in the upper class. Twenty-one persons reported they had no religion: 10 in the upper class and 11 in the lower.

Each respondent was asked how many of his normal tasks, in each of the four conditions, he would expect to perform if he encountered each of the seven health problems. The four conditions were: (1) tasks at work in the acute stage; (2) tasks at work in the convalescent stage; (3) tasks at home in the acute stage; and (4) tasks at home in the convalescent stage.

In each case the respondent was asked to de-

Distribution of major demographic variables Table 1  
in the sample by social class of the respondents

|                   |                  | Upper<br>(N=60)<br>faculty<br>group | Lower<br>(N=53)<br>neighbour-<br>hood group | Total<br>(N=113) |
|-------------------|------------------|-------------------------------------|---------------------------------------------|------------------|
| Age               | Under 44         | 35                                  | 31                                          | 66               |
|                   | Over 45          | 25                                  | 22                                          | 47               |
| Sex               | Male             | 30                                  | 23                                          | 53               |
|                   | Female           | 30                                  | 30                                          | 60               |
| Race              | White            | 60                                  | 31                                          | 91               |
|                   | Black            | 0                                   | 22                                          | 22               |
| Marital<br>status | Live with spouse | 39                                  | 36                                          | 75               |
|                   | Live singly*     | 21                                  | 17                                          | 38               |
| Religion          | Protestant       | 29                                  | 21                                          | 50               |
|                   | Catholic         | 17                                  | 21                                          | 38               |
|                   | Jewish           | 4                                   | 0                                           | 4                |
|                   | None             | 10                                  | 11                                          | 21               |

\*Singly means respondent is not living with spouse. Other people may live in the house

termine, on a scale of 0-10, how many of his normal tasks he would expect to perform. Thus the lower the numerical score the greater the amount of exemptions sought.

### Results

The means of expected exemption calculated for each type of exemption for each group of diseases are shown in Table 2.

In all four types of task situations people expect some exemptions from their normal responsibilities if they encounter dental problems. The amount of exemptions expected for tasks to be performed at work in both the acute and convalescent stages as well as tasks performed at home in the acute stage are significantly lower for dental problems than for medical problems. It is only for tasks to be performed at home after the acute stage has passed that an equalization between expected exemptions for dental and medical problems appears, and even in this situation greater exemption is expected for medical problems.

*Social class* — That social class is an important factor in the illness process has been well documented.<sup>5-7</sup> Comparisons were therefore made in order to

Means of expected exemption by type of exemption and disease Table 2

| Type of<br>disease | Type of exemption |              |        |              |
|--------------------|-------------------|--------------|--------|--------------|
|                    | Work              |              | Home   |              |
|                    | acute             | convalescent | acute  | convalescent |
| Dental             | 6.765             | 8.935        | 7.235  | 8.980        |
| Medical            | 4.518             | 7.782        | 4.582  | 8.530        |
| Difference         | 2.247*            | 1.153†       | 2.653§ | 0.36         |

\*t = 1.82623, 6df P < 0.10  
†t = 2.54215, 6df P < 0.025  
§t = 2.04597, 6df P < 0.05



Means of expected exemption by type of exemption, type of disease and social class

Table 3

|                                         | Type of disease | Upper class | Lower class | Social class difference |
|-----------------------------------------|-----------------|-------------|-------------|-------------------------|
| Tasks at work in the acute stage        | Dental          | 7.750       | 5.715       | 2.035*                  |
|                                         | Medical         | 4.808       | 4.198       | 0.610                   |
|                                         | Difference      | 2.942*      | 1.517*      |                         |
| Tasks at work in the convalescent stage | Dental          | 9.310       | 8.495       | 0.815*                  |
|                                         | Medical         | 8.084       | 7.464       | 0.620                   |
|                                         | Difference      | 1.226*      | 1.031*      |                         |
| Tasks at home in the acute stage        | Dental          | 8.010       | 6.480       | 1.530                   |
|                                         | Medical         | 4.802       | 4.356       | 0.446                   |
|                                         | Difference      | 3.208*      | 2.124*      |                         |
| Tasks at home in the convalescent stage | Dental          | 9.395       | 9.105       | 0.830*                  |
|                                         | Medical         | 8.874       | 8.432       | 0.442                   |
|                                         | Difference      | 0.521       | 0.673*      |                         |

\*t test significant at 10 level or better

investigate how social class influences the perception of dental disease (Table 3).

When controlling for social class, expected task exemption for medical disease still appears greater than for dental problems. Upper class respondents expect considerably fewer sick role exemptions than lower class respondents in every task category for both medical and dental problems. While the differences between classes are not statistically significant for medical problems, the pattern is repeated in all four conditions. With dental problems the same pattern is repeated with statistically significant differences for the conditions of work in the acute phase, work in the convalescent phase and tasks at home in the convalescent phase.

## Conclusions

The study indicates that "sick role" exemptions are expected for dental as well as medical problems but the amount of expected exemption is greater for medical than for dental problems. Upper class individuals tend to expect fewer exemptions for both medical and dental problems and the difference between classes is more pronounced with dental problems. Lower class people thus regard dental problems as serious enough to warrant exemption from normal tasks but are reluctant to legitimate their claims for exemptions. Upper class respondents, on the other hand, expect fewer exemptions from normal tasks for dental problems and tend to be more prone to seek care. That there are different orders of response for different types of disease and the reaction of different social classes to disease raises the question of factors which influence the response to illness.

Ludwig and Gibson<sup>8</sup> isolate three factors which in part influence how people respond to illness: recognition of the significance of the symptoms, situational factors which make it possible to obtain medical attention, and faith in the medical care system.

*Recognition of significance of the symptom* — While situational factors and faith in the system are important, significance of symptoms is paramount in a discussion of lay expectations of dental health and is the only issue which will be discussed. There are two dimensions of this issue: perceived severity of symptoms and symptom location in the body. The greater the severity of a disease, either as a life threat or in its potential for interference with tasks, the greater appear to be the expectations of sick role exemptions. In the performance of most tasks at work or at home, the oral cavity is not considered important. Some types of arthritis may prevent a person from performing tasks but the same may not be true of dental problems. One lower class respondent said "With trench mouth I'd do all my work. I fold shirts and don't have to see nobody. If I were a salesman and had to talk to people, that would be different."

One possible reason why people, especially those in the lower class, do not seek care for dental problems is that these may not interfere with everyday life. If symptoms do not interfere with normal tasks they are not regarded as serious and the individual does not define himself as ill and will not seek care. The lay definition of sickness as the interference with normal tasks is therefore dysfunctional for dental care. In order to encourage patients to seek early care it is important that dentists stress the difference between the nature of oral problems and other medical problems.

Medicine has three major aspects — preventive, curative and restorative. Most individuals tend to focus their attention on the curative aspects. The same holds true for dentistry. However, in the case of dental problems, people tend, for the reasons just cited, to delay seeking care and therefore it is necessary to foster a model of dentistry which will illuminate the need for preventive aspects. As long as people tend to view dental treatment as mainly curative they are apt to ignore or normalize symptoms until simple curative measures are no longer feasible. Thus, the image of dentistry, following a medical model, may be dysfunctional for improving the overall dental health of the population.

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# Continuing education in dentistry: An attitude survey in British Columbia

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*A survey conducted among dentists practising in the province of British Columbia showed that the majority were in favour of continuing education courses becoming a requirement for relicensure. Over 90 per cent of all respondents felt that continuing education was a necessity.*

*Les résultats d'une enquête effectuée auprès des dentistes en exercice en Colombie-Britannique révèlent que la majorité se montre favorable à ce que l'enseignement permanent devienne obligatoire pour l'obtention du renouvellement de la licence. Plus de 90 pour cent de toutes les réponses reçues exprimaient l'opinion que l'enseignement permanent est une nécessité.*

Continuing education for the general practitioner in dentistry seems to be accepted by most authorities as being essential.<sup>1</sup> Several surveys have been made to assess the opinions of state licensing boards in the United States as to whether they plan on keeping continuing education courses as requirements for relicensure.<sup>2</sup> It has been found in the United States that only about 15 per cent of dentists regularly attend such courses.<sup>3</sup> In Canada, Alberta and Quebec have

either legislated or intend to legislate requirements for dentists wishing to maintain their licences in good standing. A certain number of credit hours for continuing education in approved institutions is the basis. In British Columbia it was estimated last year that 25 per cent of the dentists registered in the province attended continuing education courses.<sup>4</sup> However, there is no requirement in this province for relicensing other than the payment of a fee and avoidance of certain acts covered by the criminal code and code of ethics, and so forth. A survey was made in 1972 to assess the opinions of dentists practising in BC in relation to continuing education as a requirement for relicensure.

## Method

A questionnaire was distributed to the 990 dentists practising in the province of British Columbia. Three levels of opinion were attained in the questionnaire. The first concerned attitudes as to whether continuing education was considered necessary. Secondly, the individual's intention to take courses if they were readily accessible was investigated. Finally, the willingness to accept some units of continuing education as a legal requirement for relicensure was determined.

The questionnaire (Table 1) identified the region of practice and the number of years that the respondent had been in practice. The form had four simple questions. Did the respondent believe that continuing education courses were necessary to enable him to practise good dentistry. Did he think that such courses should be made available in his dental society area? If courses in continuing dental education were made available within his dental society area, would he attend one in 1972? Finally, the respondent was asked if a variety of courses were made available each year would he think it reasonable to require a certain number of course hours for relicensure in the province of British Columbia.



## Questions listed in questionnaire

Table 1

|                                                                                                                                                                             |                                                                                                                                              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| 1. In which of the following areas do you practise?                                                                                                                         | Cariboo<br>Fraser Valley<br>Kootenay<br>Okanagan<br>Peace River<br>Skeena<br>Upper Island<br>Vancouver and District<br>Victoria and District |
| 2. How many years have you been in practice?                                                                                                                                | 0- 9<br>10-19<br>20-29<br>30-39<br>40 and over                                                                                               |
| 3. Do you believe that continuing education courses are necessary to enable you to practise good dentistry?                                                                 | Yes<br>No                                                                                                                                    |
| 4. Do you think that such courses should be made available in your dental society area?                                                                                     | Yes<br>No                                                                                                                                    |
| 5. If courses in continuing dental education were offered in your area, would you attend in 1972?                                                                           | Yes<br>No                                                                                                                                    |
| 6. If a variety of courses were made available each year, do you think it would be reasonable to require a certain number of course hours for relicensure in this province? | Yes<br>No                                                                                                                                    |

## Results

Of the 990 questionnaires sent out, 410 were returned. Of the 410, 381 were used in the survey. No questionnaires were rejected entirely, but if any question was unanswered the reply was excluded from the sample for that question only. Some dentists replied to some of the questions with comments rather than with "yes" or "no." These were considered as unanswered since it was difficult to obtain an objective interpretation. The number and percentage of total

responses were based on all 381 questionnaires received. Table 2 shows the results of the questionnaire according to district. The districts have been labelled from 1 to 7 in relation to accessibility to the University of British Columbia and the College of Dental Surgeons headquarters (the licensing authority) in Vancouver. Table 3 shows the breakdown of results according to the number of years in practice.

## Discussion

A 95 per cent "yes" response to question 3 indicates that there is high interest in continuing education from all districts. From the answers to questions 4 and 5 it appears that 93 per cent think the courses should be made available in their dental society area and 97 per cent would attend courses if they were offered. It seems strange that only 93 per cent would like the courses in the area and yet 97 per cent would attend. There is no explanation for this discrepancy. From these results it can be calculated that the attendance in continuing education courses would increase from approximately 25 to 40 per cent if such courses were offered outside Vancouver. The 68 per cent affirmative response to question 6 indicates that the majority of respondents feel that relicensure should be contingent upon attendance at continuing education courses. It appears that approximately 30 per cent of the dentists in BC are recorded as being in favour of this requirement for relicensure (41 per cent of all dentists responded, 68 per cent affirmative).

In analysing Table 3 it is quickly seen that the majority of dentists feel that continuing education courses should be offered within their dental society area. It also indicates that most of them would attend such courses. It is interesting to see that the length of time in practice decreases the number of affirmative responses for relicensure requirements. It appears that the younger dentists feel more strongly about the need for some restriction upon relicensure than those who are older. This perhaps signifies either greater wisdom in older dentists or an increasing conservatism with years in practice. It would be interesting to repeat this questionnaire in 10 years to see whether the length of time in practice alters the viewpoint.

Results of questionnaire according to district

Table 2

| District       | No. of responses |  | % of total responses | % yes to question 3 | % yes to question 4 | % yes to question 5 | % yes to question 6 |
|----------------|------------------|--|----------------------|---------------------|---------------------|---------------------|---------------------|
|                | No. of dentists  |  |                      |                     |                     |                     |                     |
| 1              | 187/547          |  | 49.08                | 96.20               | 97.83               | 97.74               | 67.58               |
| 2              | 24/82            |  | 6.30                 | 100.00              | 58.33               | 95.45               | 60.87               |
| 3              | 50/109           |  | 13.12                | 91.84               | 96.00               | 96.00               | 65.31               |
| 4              | 37/69            |  | 9.71                 | 94.59               | 89.19               | 97.06               | 64.86               |
| 5              | 37/83            |  | 9.71                 | 94.59               | 97.30               | 100.00              | 58.33               |
| 6              | 18/40            |  | 4.72                 | 94.44               | 100.00              | 100.00              | 87.50               |
| 7              | 16/32            |  | 4.20                 | 87.50               | 87.50               | 100.00              | 73.33               |
| 8              | 8/13             |  | 2.10                 | 100.00              | 100.00              | 100.00              | 87.50               |
| 9              | 4/13             |  | 1.05                 | 100.00              | 100.00              | 100.00              | 100.00              |
| Total % of yes |                  |  |                      | 95.23               | 93.29               | 97.81               | 67.51               |



| No. of years in practice | No. of responses | % of total responses | % yes to question 3 | % yes to question 4 | % yes to question 5 | % yes to question 6 |
|--------------------------|------------------|----------------------|---------------------|---------------------|---------------------|---------------------|
| 0- 9                     | 168              | 44.09                | 96.41               | 92.22               | 98.17               | 72.84               |
| 10-19                    | 95               | 24.93                | 95.74               | 96.81               | 96.67               | 67.39               |
| 20-29                    | 85               | 22.31                | 92.68               | 91.57               | 97.56               | 63.86               |
| 30-39                    | 26               | 6.82                 | 96.15               | 100.00              | 100.00              | 52.00               |
| 40 and over              | 7                | 1.84                 | 85.71               | 100.00              | 100.00              | 42.86               |
| Total % of yes           |                  |                      | 95.21               | 93.90               | 97.80               | 67.48               |

## Conclusion

A survey conducted in the province of British Columbia in January 1972 showed that a majority of dentists responding to a questionnaire were in favour of continuing education courses becoming a compulsory requirement for relicensure. There was a 41 per cent return on the questionnaire, and 68 per cent of that number were in favour of continuing education courses as a compulsory requirement. The longer the respondents had been in practice the less they felt the necessity for such a requirement. Over 90 per cent of all respondents believed that continuing education was necessary in order to practise good dentistry and that the course should be made available within their dental society area. Ninety-eight per cent stated that they would attend such courses if they were available.

A good majority of respondents were in favour of relicensure being more than the matter of payment of

a fee. There was every indication that in the province of British Columbia the use of local rather than centralized facilities would increase the attendance at continuing education courses. It seems that compulsion should be associated with availability; remoteness from centralized facilities should not be a handicap for relicensure.

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## Executive Director's Page

(Continued)

partnership arrangement of government, of providers of health services, and of the consumers that effective changes will take place to meet society's current and future needs."

Mr. Munro's statements provide evidence of his desire for a continuing, if not expanding, role by his department in working out satisfactory arrangements for the provision of health services in the provinces, and for establishing national standards for these services.

In light of these observations, it is interesting to note some of the staff adjustments which have taken place in the Department of National Health and Welfare during the past three years, particularly those relating to the dental division.

In 1969 the Dental Health Division was one of several divisions, each headed up by a chief of staff, grouped into a directorate under a director of child and adult health. Several directorates were grouped into a Health Services Branch under a director general responsible to the Deputy Minister of Health. The staff of the Dental Health Division at that time consisted of:

a chief of dental health, a dental public health officer and a dental research officer (all three were dentists); a senior dental hygienist; two secretaries; and one clerk. There was also a Minister's Advisory Committee on Dental Health chaired by the chief of the dental division.

Under a new organizational setup for the Department of National Health and Welfare dental health falls under the umbrella of a Task Force on Community Health within a new Health Programs Branch headed by an assistant deputy minister. Currently, dental personnel in the Health Programs Branch consist of one dental consultant and one dental hygiene consultant, both with secretarial support. Administrative authority is now channelled through the co-ordinator of the Task Force. The former Minister's Advisory Committee has had its last meeting.

This obvious reduction in the dental staff — from seven employees down to four — at a time when activity in the health field is at an all-time high is, to say the least, very puzzling. I have been informed that the reduction in dental personnel should not be interpreted necessarily as a reduction of departmental interest in dental matters. I hope not. It does, however, seem to suggest that the dental profession should lose no opportunity to make its collective voice heard in all matters concerning dentistry's involvement in national health programs.



# Cases and comments

## The use of rubber dam in endodontics

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The most time-consuming thing about rubber dam is the time required to convince the dentist to use it. The second hardest thing is to persuade him to use material of the right colour and weight and the frame best suited for each operative procedure. Most dentists have a preference for a particular colour and weight, a particular frame and a few favourite rubber dam clamps which they use for all procedures without realizing how frustrating this can be. Very few consider that there are two shades of rubber dam (black and yellow), four thicknesses (light, medium, heavy and extra heavy) and three commonly used frames (Wizard, Young and Ostby). These provide the practitioner with 24 combinations of colour, weight and frames, to which he may add a wide variety of clamps.

The purpose of this article is to review the most effective use of rubber dam in endodontics.

### Colour

I prefer light yellow dam for the following reasons. The beam of the operating light can penetrate through the crown and the coronal third of the root, with improved visibility of the root canal orifice. Light reflected by the dam also helps in locating the orifices, especially in posterior teeth. These two features are particularly useful in upper first bicuspid where the two orifices are notoriously hard to locate.

Light yellow dam is also useful when exposing a radiograph to determine root length with a measured instrument in the canal. One can see the film pack through the light dam and thus determine the correct angle of the main x-ray beam without having to remove the dam or frame. The same holds true for radiographs to check the position of a master point.

### Weight

I use medium weight rubber dam. Since there is usually no need for tissue retraction, thicker material is unnecessary. It is easier to slide a thinner dam between the teeth and this is especially important when the tooth under treatment is tender. Medium dam can be folded over at the gingival margin with a blunt instrument while the chair assistant dries the tooth with a steady stream of air, without disturbing

the tooth, whereas a heavy dam often requires the use of floss which will create painful pressure. Light rubber dam is very easy to slide between the teeth, but it is often very difficult to fold under to get a good seal on the lingual surface.

### Frame

The Ostby frame is ideal for endodontic treatment, having been designed for this express purpose. Being made of acrylic resin, it does not interfere with x-rays. The Ostby frame covers the patient's nostrils and prevents contamination from nostril breath. A further advantage is its ability to shield the patient from offensive odours that often issue from the canals and block the odours of various drugs.

When cutting a length of rubber dam, it is necessary to allow an extra inch of rubber to fold over the Ostby frame. Using electrical clasps to hold it, a trough can be formed into which water, alcohol or irrigating solutions can run. An evacuation system using full power water pressure clears away any debris during drilling and also allows for copious flushing of the canal.

### Clamps

For many years it has been traditional to place a rubber dam clamp on the tooth being treated. This practice should be avoided whenever possible for several reasons. First, it eliminates clamping tender teeth which have active inflammation. Such teeth might otherwise require local anaesthesia, which can be notoriously difficult. Secondly, if the clamp is placed on the tooth under treatment, it hinders light from penetrating through the crown and rubber dam. Thirdly, on the posterior teeth, the loop of the clamp interferes with the instrumentation of mesial canals which must be approached from the distal aspect. It can also interfere with the mirror and the contra-angle.

### Procedure

Perhaps the best means of illustrating the procedure is to give examples.

When treating an upper right central incisor, punch holes for the two central incisors, the upper right lateral incisor and the upper right cuspid. Lubricate the dam and carefully slide it over the four teeth, stretching and sliding the rubber sideways between the teeth. Little or no pressure will be exerted on the upper right central incisor. Anchor the dam to the first bicuspid by placing an SSW 206 or 209 clamp over the rubber. If this is done carefully there is no discomfort as the rubber dam acts as a cushion.

Grasping the free ends of the dam, slide a previously cut piece of paper over the patient's lips and cheeks. A dam with a paper under it feels much more pleasant than one without.

Fit the dam over an Ostby frame (the dentist attaches the right side, the assistant the left side). Stretch the top of the dam and centre the Ostby frame. Let the dam fold over the projections at the top.



Stretch it over all the projections; then fold it over the sides of the Ostby frame and fasten it with electrical clips. This forms a trough from which the water and chemicals can be evacuated either by the assistant or automatically as previously described.<sup>1</sup>

Fold the dam under the gingival margin with a blunt instrument. While this is being done the assistant can dry the tooth with compressed air.

The advantages of this technique are:

1. The tooth being treated is not subjected to any pressure because the weight of the dam and frame is absorbed by the clamp and the left central incisor.

2. There is no interference with direct or reflected light.

3. The dam is held back so that there is no interference with the mirror or endodontic instruments.

4. Irrigating fluid can be trapped in the trough and evacuated from there.

5. If the teeth are irregular it is easier to ascertain the long axis of the tooth and avoid a possible perforation.

For the right lateral incisor, punch holes for both central incisors, the right lateral incisor and cuspid, and place a No. 206 or 209 clamp over the rubber dam on the first bicuspid.

When treating the right cuspid, punch holes for the right central and lateral incisors, the cuspid and first bicuspid. Place a No. 206 or 209 clamp over the rubber dam on the second bicuspid.

For the first bicuspid, punch holes for the central and lateral incisors, the cuspid and first bicuspid. Again place the No. 206 or 209 clamp over the second bicuspid.

The foregoing teeth can be isolated without using any anaesthetic. For an extremely nervous patient, however, a small labial injection may be advisable.

If the tooth to be treated is the second bicuspid, anaesthetize the molar with a tuberosity injection and a small palatal injection opposite the first molar and midway between the tooth and the centre of the palate. This is the least sensitive area of the palate and, if a 30 gauge needle and a light touch are used, the patient experiences little or no discomfort. Isolation of the second bicuspid and all three molars necessitates anaesthesia because placement of the rubber dam clamp is almost invariably painful in that area.

For the second bicuspid, punch holes for the central and lateral incisors, the cuspid, the two bicuspid and the first molar. Place a No. 14A clamp on the first molar.

For the first and second molars, punch holes for the central and lateral incisors, the cuspid, the two bicuspid and the first and second molars. Place a W14A or W14 clamp on the second molar. The W14 clamp has no wings and therefore will not press on the masseter muscle if the mouth opens wide when the molars are being treated.

As a rule, third molars are only treated if they have drifted forward following the loss of a second molar. They are then handled like second molars.

The same technique may be applied to the lower quadrant. However, a mandibular block injection is mandatory because the shape of the lower bicuspid invariably causes clamps to impinge on the gingiva in spite of placing them over the dam. Exposing radiographs of the lower tooth roots can also be very uncomfortable if the lingual aspect of the jaw is not anaesthetized. A further advantage of the mandibular

block injection is that the injection site is well away from the teeth.

There are two other minor differences when treating the lower jaw. It is necessary to use a 14A rather than a W14A clamp as the wings help hold the dam out of the way and the clamp does not impinge on the masseter muscle. The other point concerns identification of the tooth to be treated — a significant feature in lower incisors whose crowns are often identical in shape. To avoid any mistakes, two balsa wood interdental stimulators (Stimudent) are reduced with a scalpel and gently fitted into the mesial and distal embrasures of the tooth to be opened.

When there are no teeth distal to a bicuspid or molar under treatment, there is no other choice but to place the clamp on the tooth involved. Because the rubber dam tends to tip the loop of the clamp forward, inhibiting vision and access, I use Ivory No. 31 or 32 clamps. These have an extended arm which was originally designed to hold a cotton roll. By putting a short length of cotton roll under the arm it will rest on the lip or Ostby frame and prevent the loop from tipping forward. This procedure is also useful in a similar situation when preparing a disto-occlusal cavity.

Those who advocate isolating the single tooth undergoing endodontic treatment claim the following advantages for this procedure:

1. "It is easier and faster than multi-tooth isolation." However, it takes only an average of two minutes and 10 seconds from the moment I pick up the dam until the tooth is ready to be opened.

2. "There is less danger of leakage around the dam if the clamp is placed on the tooth." But, in my 29 years' experience, the risk of leakage with a correctly placed rubber dam is minute and can be easily corrected.

3. "The tooth and rubber dam can be painted with an antiseptic and rendered sterile." I question the validity of this assertion since chemical sterilization of instruments requires at least 20 minutes' total immersion and even then is considered to be the least effective method of acquiring sterility.

If the tooth is opened with a high-speed sterile 1557 bur with maximum water and air, the access to the root canal will likely be clean to the point of sterility. Moreover, it is inconceivable that a dentist would miss the opening and rub the external surface of the tooth or rubber dam with the sterile endodontic file or reamer.

## Summary

Twenty-four combinations of rubber dam material and frames and a wide variety of clamps are available from which the practitioner may select the items he prefers. A method of using rubber dam in endodontic treatment has been described. This procedure facilitates vision and instrumentation and confers greater comfort to the patient.

Doctor Cragg's address is 39 McKenzie Street, Suite 101, New Westminster, BC.

1. Cragg, T. K. Water evacuation when using rubber dam. *J Canad Dent Ass* 32:402, 1966.



# L'état de santé bucco-dentaire de l'enfant canadien-français de six à 13 ans

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*Résultats d'une étude semi-longitudinale sur les indices CAO et co de 1,535 enfants d'origine canadienne-française de six à 13 ans examinés durant quatre années consécutives. Comparés aux indices présentés par d'autres populations, ceux des échantillons suivis se classent parmi les plus élevés au monde. Cependant, la différence constatée entre l'état des enfants de neuf et de 10 ans, représentant respectivement la quatrième année du premier groupe et la première année du deuxième groupe de l'échantillon semi-longitudinal, nous permet de reconnaître l'influence et l'importance de l'éducation dentaire ainsi que celles de la prise de conscience de la valeur des soins dentaires durant les premières années de l'enfance.*

*This paper reports the results of a four year longitudinal dental caries prevalence study in 1,535 Montreal school children of French Canadian origin between the ages of six and 13. The subjects were divided into two groups: 813 children aged 6-9 who received dental health education, and 722 children aged 10-13 who received no dental health education. Compared to other populations, their DMFT and DFT indices are among the highest in the world. There is a significant gap, however, between the indices of the nine and 10 year olds (which represent respectively the fourth follow-up year of the first group and the first year of the second group in the mixed longitudinal sample). The authors attribute this difference to the beneficial effects of early dental health education.*

Actuellement, toutes les études effectuées sur la santé buccale dans le monde entier ont tendance à présenter les problèmes concernant la carie dentaire et l'indice CAO comme une indication de l'état général de la santé buccale de l'individu, c'est-à-dire, comme une conséquence résultant de l'action combinée de plusieurs facteurs associés: le régime alimentaire, les soins et l'hygiène dentaire, le statut socio-économique, le climat et la race.<sup>1, 2</sup>

L'approche adoptée pour cette étude sur la carie dentaire et la santé buccale coïncide exactement, de façon globale, avec la recherche épidémiologique de ces phénomènes. Elle est reliée à l'étude des processus de croissance réalisée au Centre de Recherches sur la Croissance chez les enfants canadiens-français.

Toutefois, le présent article constitue la suite d'une publication précédente sur le même sujet,<sup>3</sup> dans laquelle nous avons voulu exposer très objectivement l'état de la dentition des enfants composant l'échantillonnage du Centre de Recherches sur la Croissance de l'Université de Montréal. En conséquence nous suivrons les lignes générales de la première partie de notre travail en appuyant particulièrement sur l'indice CAO présenté par les enfants de Montréal.

Dans la publication précédente, qui se limitait aux enfants de six, sept, 10 et 11 ans de notre échantillon, nous avons établi que:

1. l'état de santé dentaire, d'après l'indice CAO s'avère déplorable;
2. l'état de santé buccale des enfants canadiens-français est assez inférieur comparativement à celui d'autres populations infantiles au Canada (Colombie-Britannique et Ontario);
3. comparé à l'indice CAO des autres pays du monde, celui des enfants Montréalais figure parmi les plus élevés.

Conséquemment le présent travail a pour but: (1) de donner l'image réelle et globale de l'état de santé dentaire de la population infantile, du point de vue clinique, des enfants de six à 13 ans du Québec; (2) de la comparer à celles de différentes populations d'autres pays du monde.

## Caractéristiques de l'échantillon

Dans une publication précédente,<sup>4</sup> nous avons exposé les caractéristiques de notre échantillon. Nous présentons un tableau complet des caractéristiques de



**Répartition des 1,535 enfants d'origine canadienne-française qui ont été examinés**

**Tableau 1**

| Age   | Garçons | Filles | Total |
|-------|---------|--------|-------|
| 6     | 108     | 98     | 206   |
| 7     | 97      | 89     | 186   |
| 8     | 97      | 91     | 188   |
| 9     | 122     | 111    | 233   |
| 10    | 109     | 112    | 221   |
| 11    | 98      | 92     | 190   |
| 12    | 90      | 80     | 170   |
| 13    | 76      | 65     | 141   |
| Total | 797     | 738    | 1,535 |

notre échantillon semi-longitudinal ci-dessus. Nous avons examiné simultanément les deux groupes d'enfants composant notre population, l'un comportant des enfants de six à neuf ans et l'autre des enfants de 10 à 13 ans.

## Méthode

L'examen clinique effectué au Centre est celui du type 1 d'après Dunning<sup>5</sup> dont la description comprend un examen clinique complet avec l'utilisation d'un miroir, d'un explorateur, l'illumination appropriée et la prise de radiographies. En l'occurrence, quand les circonstances le réclament, nous avons recours aux tests de percussion, de vitalité pulpaire et de laboratoire, à la transillumination et aux modèles d'étude.

Les enfants sont examinés une fois par année durant la quinzaine précédant ou suivant le jour de leur anniversaire.

Nous prenons des radiographies coronaires postérieures et panoramiques de routine de la bouche de chaque enfant de même que des empreintes supérieures et inférieures en alginate, afin de disposer de modèles d'étude de chaque patient.

Nous avons choisi la terminologie conventionnelle pour désigner les indices co(DF), CAO (DMF) et co + CAO (DF + DMF) utilisée universellement et adoptée par Baume<sup>6, 7</sup> et l'Organisation Mondiale de la Santé.<sup>8</sup>

## Résultats

Le résultat global de notre étude est présenté sous forme d'histogrammes et de tableaux descriptifs. Pour fins de comparaisons ultérieures, nous incluons le contexte international de Toth<sup>9</sup> ainsi qu'un tableau comparant l'indice CAO (DMF) moyen de notre échantillon à celui d'enfants sud-australiens<sup>10</sup> et italiens (Di Cuneo).<sup>11</sup>

Le Tableau 2 présente une comparaison de l'indice co (DF) moyen entre un groupe d'enfants sud-australiens et le groupe d'enfants de Montréal. La similitude des résultats est apparente.

Cependant l'examen du Tableau 3 révèle que l'indice CAO des enfants de Montréal est beaucoup plus élevé.

Le Tableau 4 (première dentition), le Tableau 5 (deuxième dentition) et le Tableau 6 (dentition mixte) donnent une description statistique des résultats.

**Tableau comparatif de l'indice co (DF) moyen de deux populations infantile: sud-australienne et montréalaise**

**Tableau 2**

| Etude transversale<br>Enfants sud-australiens (1969) |     |      | Etude semi-longitudinale<br>Enfants de Montréal (1966-70) |     |      |
|------------------------------------------------------|-----|------|-----------------------------------------------------------|-----|------|
| Garçons et filles                                    |     |      | Garçons et filles                                         |     |      |
| N                                                    | Age | co   | N                                                         | Age | co   |
| 336                                                  | 6   | 6.77 | 206                                                       | 6   | 7.07 |
| 346                                                  | 8   | 5.72 | 188                                                       | 8   | 5.88 |
| 337                                                  | 10  | 3.53 | 221                                                       | 10  | 3.53 |
| 336                                                  | 12  | 0.80 | 170                                                       | 12  | 0.69 |

**Tableau comparatif de l'indice CAO (DMF) moyen chez les enfants sud-australiens, italiens et montréalais**

**Tableau 3**

| Enfants sud-australiens (1970)<br>(étude transversale) |     |      | Enfants Di Cuneo (1970)<br>(étude transversale) |     |      | Enfants de Montréal (1966-70)<br>(étude semi-longitudinale) |     |       |
|--------------------------------------------------------|-----|------|-------------------------------------------------|-----|------|-------------------------------------------------------------|-----|-------|
| N                                                      | Age | CAO  | N                                               | Age | CAO  | N                                                           | Age | CAO   |
| 336                                                    | 6   | 1.33 |                                                 | 6   |      | 206                                                         | 6   | 1.01  |
| 346                                                    | 8   | 3.01 |                                                 | 8   |      | 188                                                         | 8   | 3.78  |
| 337                                                    | 10  | 4.51 | 276                                             | 10  | 4.02 | 221                                                         | 10  | 7.00  |
|                                                        | 11  |      | 57                                              | 11  | 4.85 | 190                                                         | 11  | 9.06  |
| 336                                                    | 12  | 8.01 | 25                                              | 12  | 3.90 | 170                                                         | 12  | 11.09 |
|                                                        | 13  |      | 66                                              | 13  | 3.60 | 141                                                         | 13  | 11.37 |



Indice co (DF) des enfants âgés de six à 13 ans

Tableau 4

| Age | Sexe | Nombre | Moyenne | Ecart-type | Médiane | Limites de confiance |                   | Moyenne de dents présentes |
|-----|------|--------|---------|------------|---------|----------------------|-------------------|----------------------------|
|     |      |        |         |            |         | P 0.05               | P 0.01            |                            |
| 6   | F    | 98     | 7.1735  | 4.0155     | 7.7100  | 7.9685 - 6.3785      | 8.2200 - 6.1270   | 16.8571                    |
|     | G    | 108    | 6.9815  | 4.0138     | 6.7800  | 7.7554 - 6.2076      | 8.0003 - 5.9627   | 17.4074                    |
| 7   | F    | 89     | 6.5618  | 3.7263     | 6.3130  | 7.3359 - 5.7877      | 7.5808 - 5.5428   | 13.3483                    |
|     | G    | 97     | 6.4639  | 3.6488     | 6.2900  | 7.1900 - 5.7378      | 7.4197 - 5.5081   | 14.5258                    |
| 8   | F    | 91     | 5.7582  | 3.3043     | 6.0000  | 6.4371 - 5.0792      | 6.6518 - 4.8645   | 9.7033                     |
|     | G    | 97     | 6.0103  | 3.3087     | 6.0000  | 6.6687 - 5.3518      | 6.8770 - 5.1435   | 11.0309                    |
| 9   | F    | 111    | 4.6577  | 3.4470     | 5.0000  | 5.2989 - 4.0164      | 5.5018 - 3.8135   | 7.9369                     |
|     | G    | 122    | 4.4426  | 2.9487     | 4.0000  | 4.9658 - 3.9193      | 5.1313 - 3.7538   | 8.8115                     |
| 10  | F    | 112    | 3.1786  | 2.7744     | 2.9300  | 3.6924 - 2.6648      | 3.8549 - 2.5023   | 4.6429                     |
|     | G    | 109    | 3.8899  | 2.9731     | 3.6800  | 4.4480 - 3.3318      | 4.4480 - 3.3318   | 6.2202                     |
| 11  | F    | 92     | 1.5109  | 1.9072     | 0.8640  | 12.4718 - 10.5064    | 12.7827 - 10.1955 | 2.2826                     |
|     | G    | 98     | 2.0510  | 2.3170     | 1.4200  | 11.0816 - 9.4286     | 11.3431 - 9.1671  | 3.2551                     |
| 12  | F    | 80     | 0.6500  | 1.2936     | 0.00    | 0.9334 - 0.3665      | 1.0231 - 0.2768   | .8750                      |
|     | G    | 90     | 0.7222  | 1.3985     | 0.00    | 1.0111 - 0.4332      | 1.1025 - 0.3418   | 1.2000                     |
| 13  | F    | 65     | 0.1077  | 0.3590     | 0.00    | 0.1949 - 0.0204      | 0.2225 - 0.0071   | .2308                      |
|     | G    | 76     | 0.2237  | 0.6653     | 0.00    | 0.3732 - 0.0741      | 0.4205 - 0.0268   | .4079                      |

Indice CAO dents (DMFT) des enfants âgés de six à 13 ans

Tableau 5

| Age | Sexe | Nombre | Moyenne | Ecart-type | Médiane | Limites de confiance |                   | Moyenne de dents présentes |
|-----|------|--------|---------|------------|---------|----------------------|-------------------|----------------------------|
|     |      |        |         |            |         | P 0.05               | P 0.01            |                            |
| 6   | F    | 98     | 1.0510  | 1.1498     | 0.3450  | 1.3469 - 0.7551      | 1.4405 - 0.6615   | 3.2551                     |
|     | G    | 108    | 0.9722  | 1.6991     | 0.2610  | 1.2926 - 0.6518      | 1.3940 - 0.5504   | 2.4444                     |
| 7   | F    | 89     | 2.7865  | 1.8057     | 3.5400  | 3.1616 - 2.4114      | 3.2803 - 2.2927   | 7.8876                     |
|     | G    | 97     | 2.3608  | 1.7211     | 2.4700  | 2.7033 - 2.0183      | 2.8116 - 1.9100   | 6.4639                     |
| 8   | F    | 91     | 3.7473  | 1.6370     | 4.0000  | 4.0836 - 3.0149      | 4.1900 - 3.3045   | 10.9011                    |
|     | G    | 97     | 3.8041  | 1.8007     | 4.0000  | 4.1624 - 3.4457      | 4.2758 - 3.3323   | 9.8763                     |
| 9   | F    | 111    | 3.8739  | 2.4163     | 4.0000  | 4.3234 - 3.4243      | 4.4656 - 3.2821   | 13.3514                    |
|     | G    | 122    | 3.4754  | 1.9843     | 4.0000  | 3.8275 - 3.1232      | 3.9388 - 3.0119   | 12.0492                    |
| 10  | F    | 112    | 7.4732  | 3.9773     | 6.5000  | 8.2098 - 6.7366      | 8.4428 - 6.5036   | 15.8393                    |
|     | G    | 109    | 6.5138  | 3.3846     | 5.7500  | 7.1492 - 5.8784      | 7.3501 - 5.6775   | 14.6514                    |
| 11  | F    | 92     | 9.9783  | 5.0622     | 8.9300  | 11.0127 - 8.9439     | 11.3399 - 8.6167  | 20.1196                    |
|     | G    | 98     | 8.2041  | 4.6105     | 7.0400  | 9.1169 - 7.2913      | 9.4056 - 7.0026   | 18.7959                    |
| 12  | F    | 80     | 11.7750 | 5.3533     | 11.000  | 12.9480 - 10.6019    | 13.3191 - 10.2308 | 23.4125                    |
|     | G    | 90     | 10.4111 | 5.3104     | 9.000   | 11.5082 - 9.3139     | 11.8552 - 8.9669  | 23.0111                    |
| 13  | F    | 65     | 12.3385 | 7.2528     | 10.0000 | 14.1017 - 10.5752    | 14.6594 - 10.0175 | 25.4308                    |
|     | G    | 76     | 10.3947 | 6.5647     | 8.0000  | 11.8706 - 8.9187     | 12.3374 - 8.4519  | 25.2895                    |

Indices CAO-co dents (DMFT plus DFT) des enfants âgés de six à 13 ans

Tableau 6

| Age | Sexe | Nombre | Moyenne | Ecart-type | Médiane | Limites de confiance |                   | Moyenne de dents présentes |
|-----|------|--------|---------|------------|---------|----------------------|-------------------|----------------------------|
|     |      |        |         |            |         | P 0.05               | P 0.01            |                            |
| 6   | F    | 98     | 8.2245  | 4.5124     | 8.0000  | 9.1179 - 7.3311      | 9.4005 - 7.0485   | 20.1122                    |
|     | G    | 108    | 7.9537  | 4.2808     | 7.2330  | 8.7610 - 7.1464      | 9.0164 - 6.8910   | 19.8519                    |
| 7   | F    | 89     | 9.3483  | 4.1729     | 9.5600  | 10.2152 - 8.4814     | 10.4894 - 8.2072  | 21.2360                    |
|     | G    | 97     | 8.8247  | 4.0130     | 8.9400  | 9.6233 - 8.0261      | 8.8759 - 7.7735   | 20.9897                    |
| 8   | F    | 91     | 9.5055  | 3.6648     | 10.0000 | 10.2584 - 8.5143     | 10.4966 - 8.5143  | 20.4066                    |
|     | G    | 97     | 9.8144  | 3.9826     | 10.0000 | 10.6069 - 9.0218     | 10.8576 - 8.7711  | 20.9072                    |
| 9   | F    | 111    | 8.5315  | 4.1948     | 8.0000  | 9.3118 - 7.7511      | 9.5587 - 7.5042   | 21.2883                    |
|     | G    | 122    | 7.9180  | 3.7230     | 8.0000  | 8.5786 - 7.2573      | 8.7876 - 7.0483   | 20.8607                    |
| 10  | F    | 112    | 10.6518 | 3.7265     | 10.5000 | 11.3419 - 9.9617     | 11.5602 - 9.7434  | 20.4821                    |
|     | G    | 109    | 10.4037 | 4.2254     | 10.1400 | 11.1969 - 9.6105     | 11.4478 - 9.3596  | 20.8716                    |
| 11  | F    | 92     | 11.4891 | 4.8095     | 10.6400 | 12.4718 - 10.5064    | 12.7827 - 10.1955 | 22.4022                    |
|     | G    | 98     | 10.2251 | 4.1748     | 10.0000 | 11.0816 - 9.4286     | 11.3431 - 9.1671  | 22.0510                    |
| 12  | F    | 80     | 12.4250 | 5.4186     | 12.0000 | 13.6124 - 11.2375    | 13.9880 - 10.8619 | 24.2875                    |
|     | G    | 90     | 11.1333 | 5.1039     | 10.0000 | 12.1877 - 10.0788    | 12.5213 - 9.7452  | 24.2111                    |
| 13  | F    | 65     | 12.4462 | 7.2220     | 10.0000 | 14.2019 - 10.6904    | 14.7573 - 10.1350 | 25.6615                    |
|     | G    | 76     | 10.6184 | 6.4415     | 8.0000  | 12.0666 - 9.1701     | 12.5247 - 8.7120  | 25.6974                    |



CANADA, Montréal, 1967 - 70

Garçons  
Filles

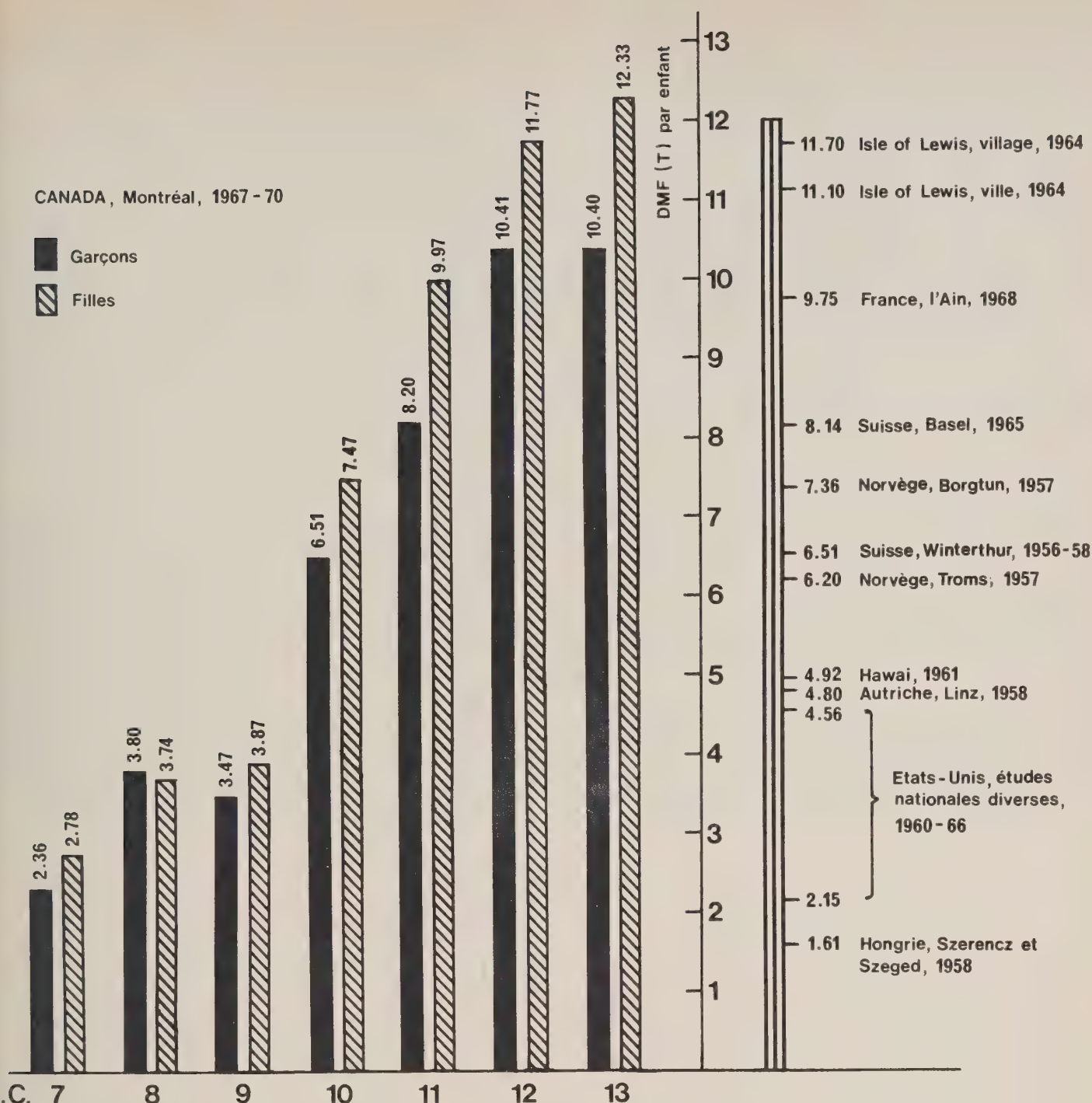


Fig 1 Etat de dentition permanente, enfants canadiens-français de Montréal. Comparaison avec d'autres études nationales récentes âgés de sept à 14 ans. Echelle comparative modifiée d'après K. Toth.

On notera que la moyenne des dents présentes est incluse dans ces tableaux afin de fournir une meilleure image de l'ampleur de l'état de santé dentaire.

Par ailleurs, si nous comparons nos observations avec celles de certaines études faites dans d'autres pays (Fig 1) nous constatons immédiatement que notre échantillon se situe à un niveau très élevé.

Les Figures 2, 3 et 4 établissent une image visuelle des indices des dentitions. Ajoutons que la ligne pointillée verticale établit la frontière entre les deux groupes qui ont été examinés parallèlement. On no-

tera aussi, plus particulièrement dans la Figure 3, la différence entre les enfants de neuf ans qui fréquentaient le Centre depuis quatre ans et ceux de 10 ans qui le fréquentaient pour la première année.

Cet écart résulte probablement de l'éducation reçue au Centre et de la motivation dont ce groupe fut l'objet.

## Discussion

Nous analyserons séparément la première et la deuxième dentition. Les observations portant sur la



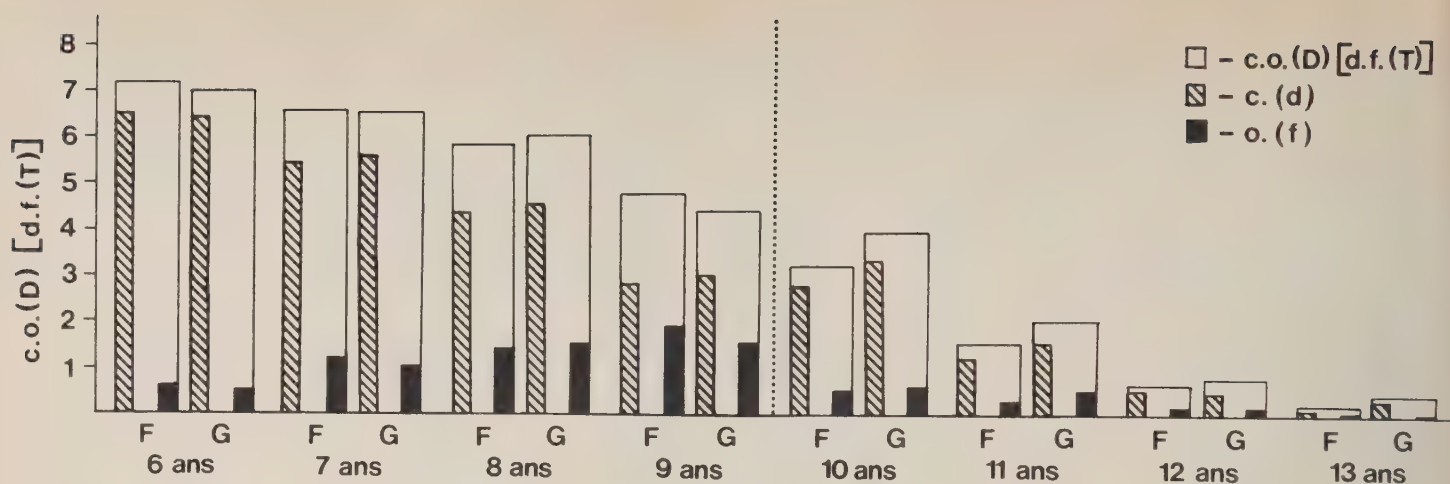


Fig 2 Première dentition: index co dents (DFT) moyen d'un groupe de filles et garçons de six à 13 ans, Montréal 1971.

dentition mixte comprennent l'analyse combinée des deux dentitions.

**Première dentition** — L'indice co (DF) du premier groupe (six à neuf ans) se situe au même niveau pour les garçons et pour les filles sauf pour les garçons de huit ans qui présentent un co (DF) plus élevé.

L'indice co (DF) pour le deuxième groupe (10 à 13 ans) présente un niveau toujours plus élevé chez les garçons. Cette particularité pourrait résulter d'une chute plus tardive des dents de la première dentition.

Il se dégage de l'ensemble des observations que la composante la plus importante de l'indice co est le

c (taux de carie). On pourra noter aussi qu'avec l'âge le taux de caries baisse alors que le taux d'obturations augmente. Par ailleurs, les variations observées dans les proportions ne sont pas constantes puisque le c est toujours la plus élevée des composantes de l'indice co.

**Deuxième dentition** — L'indice CAO se situe au même niveau pour les garçons et pour les filles chez les enfants de six à huit ans, tandis que pour les enfants de neuf ans il apparaît un peu plus élevé chez les filles. Ceci pourrait s'expliquer par le fait que chez les filles, les dents permanentes arrivent en bouche plus tôt que chez les garçons.

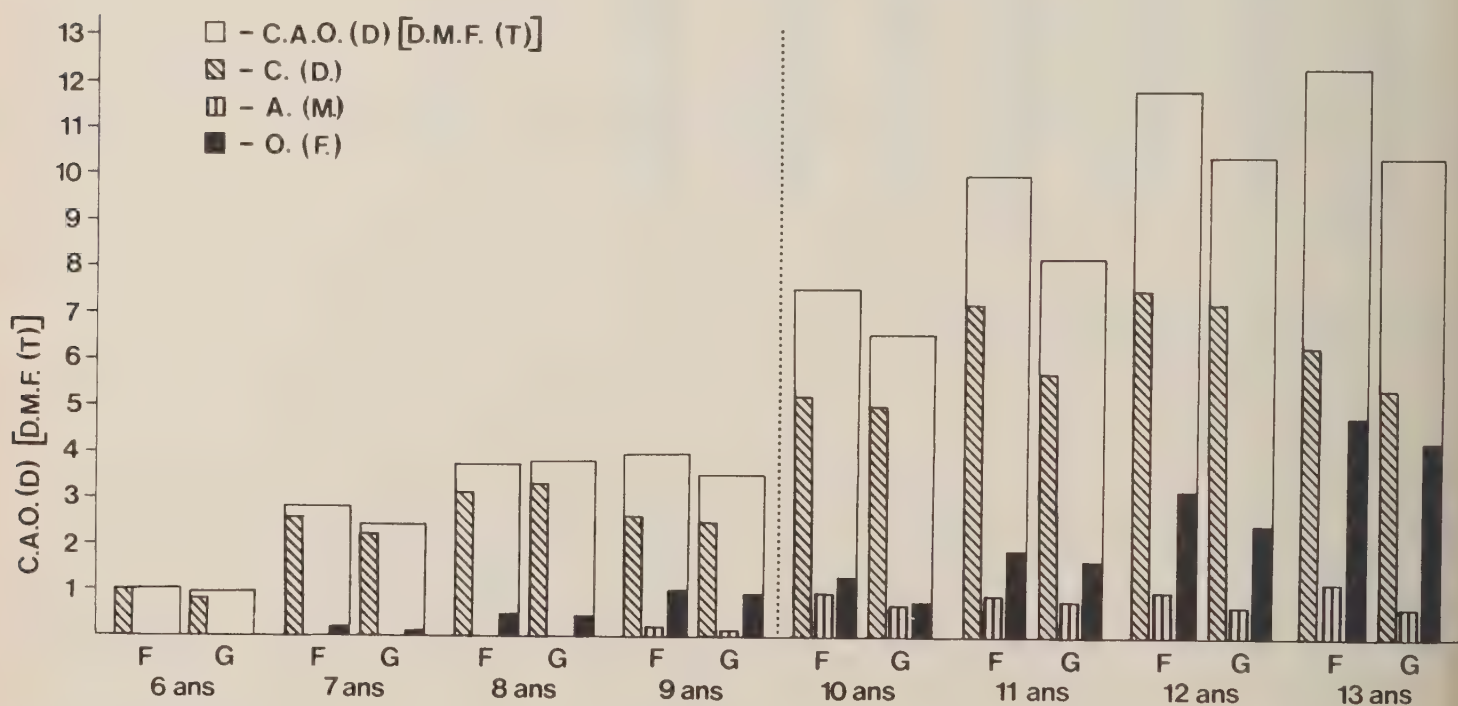


Fig 3 Deuxième dentition: index CAO dents (DMFT) moyen d'un groupe de filles et garçons de six à 13 ans, Montréal 1971.



Pour les enfants de 10 à 13 ans, le CAO montre une augmentation constante d'année en année. En qualité de norme, le CAO chez les filles est plus élevé que chez les garçons.

Nous pouvons remarquer entre les enfants de neuf ans (premier groupe) et ceux de 10 ans (deuxième groupe) une augmentation de l'indice CAO de 3.00 comme minimum. Normalement, la différence observée n'est pas particulièrement sensible.

Deux facteurs pourraient justifier ces différences: (1) il s'agit de deux groupes différents d'enfants suivis parallèlement (six à neuf ans et 10 à 13 ans); (2) les enfants de neuf ans ont été suivis pendant quatre ans et soumis à une éducation dentaire dont les résultats ont été très positifs si l'on considère l'indice CAO moyen de 3.67. Par contre, les enfants de 10 ans dont l'indice CAO moyen se situe à 6.99 regroupent ceux qui commencent la deuxième série et qui n'ont reçu aucune éducation dentaire.

Il faut enfin considérer la possibilité d'avoir touché un groupe manifestant un taux de carie plus élevé que la normale.

Actuellement, à l'échelle internationale d'après Toth, l'indice CAO le plus élevé se situe à 11.70 pour les enfants de sept à 14 ans. Dans notre échantillon, les filles de 13 ans se situent au-delà de ce chiffre (indice CAO de 12.3).

D'autre part, comparant les enfants de Montréal à d'autres populations, nous avons trouvé que l'étude transversale effectuée en 1969 chez les enfants d'Australie du Sud révélait des indices co et CAO pour certains âges à peu près identiques à ceux de nos données (Tableau 2).

Par contre, une étude réalisée en Italie (Di Cuneo, 1970) révèle des indices constamment plus bas dans la proportion de la moitié ou du tiers du nôtre. Mais cette comparaison n'est pas tellement valable à cause

des proportions réduites de l'échantillon de Di Cuneo (Tableau 3).

Nous avons, à ce jour, terminé la quatrième année de recherche sur la santé dentaire des enfants de notre étude semi-longitudinale. L'expérience clinique permet certaines conclusions qui résultent de l'étude longue et laborieuse que nous avons entreprise sur le sujet.

C'est ainsi que nous considérons que la santé buccale et dentaire des enfants suivis par le Centre de Recherches sur la Croissance constitue un échantillon assez représentatif de la population infantile de Montréal dont l'état requiert l'assistance de nos soins professionnels.

Toutefois, même si nous sommes en présence d'une situation inquiétante, comme l'indiquent les indices très élevés que présentent nos enfants, nous pouvons constater par les tableaux statistiques de nos résultats une tendance à l'amélioration de l'état de santé dentaire qui se traduit par l'augmentation du taux d'obturations (o et 0).

Cette amélioration se manifeste surtout dans le groupe d'enfants de six à neuf ans qui a bénéficié d'un enseignement dentaire dès le début de nos travaux de recherches.

Parallèlement, nous avons tenté de créer en quelque sorte une "conscience dentaire" chez les parents de nos enfants. Cette réalisation a été possible grâce aux échanges directs d'idées avec ces derniers et aux conseils professionnels qu'ils ont reçus pendant leur visite annuelle au Centre.

Par contre, nous avons constaté parmi les enfants qui avaient 10 ans au début du projet (ceux du groupe de 10 à 13 ans) que l'indice CAO augmente graduellement chaque année. Nous sommes ici en présence d'un phénomène normal si l'on considère que le nombre de dents permanentes susceptibles d'être at-

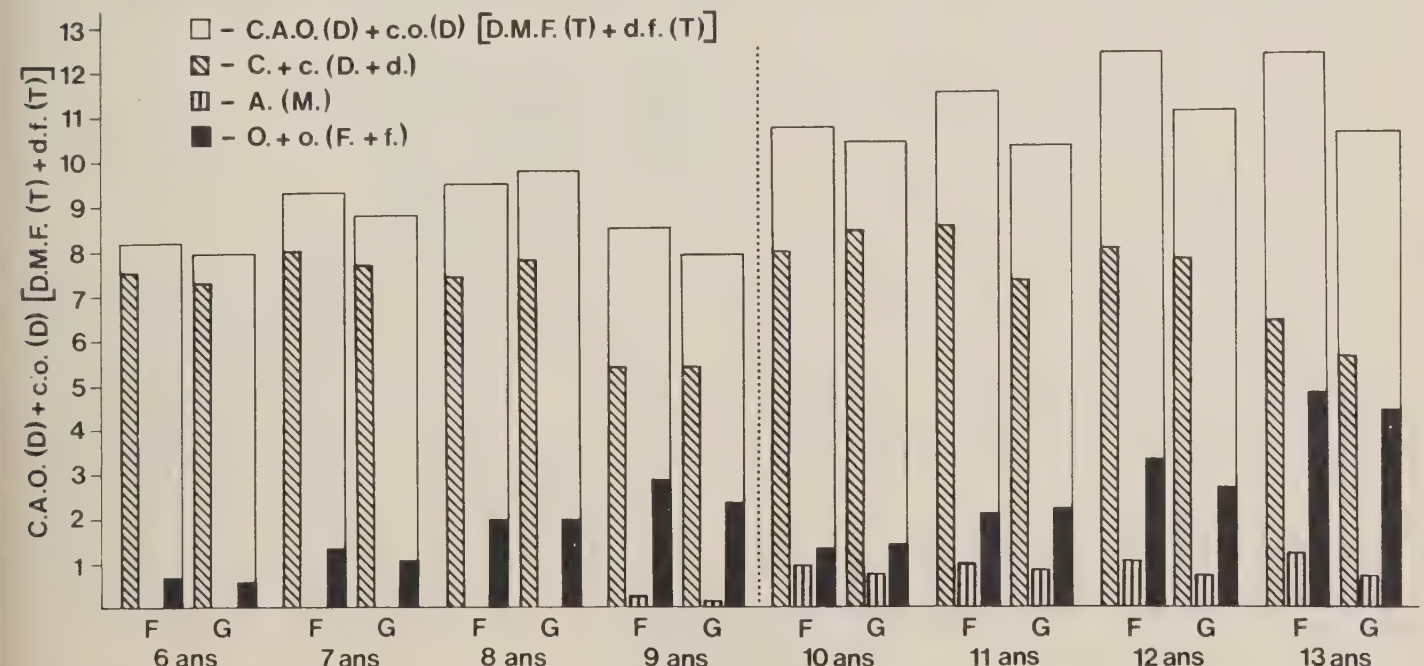


Fig 4 Dentition mixte: index CAO + co dents (DMFT + DFT) moyen d'un groupe de filles et garçons de six à 13 ans, Montréal 1971.



teintes par la carie augmente progressivement avec l'âge des enfants.

Finalement, cette étude nous permet aussi d'exprimer la conviction qu'il est possible d'améliorer, du moins en partie, la santé dentaire de la population scolaire en appliquant les mesures préventives appropriées à l'échelle de toute la population.

## Conclusion

1. Les indices co-CAO (DF-DMF, co(DF) et CAO (DMF) sont très élevés dans notre échantillon, surtout chez les filles.

2. A l'échelle mondiale, nos indices se révèlent toujours plus élevés que ceux des autres pays, sauf dans le cas des enfants du sud de l'Australie (indice co (DF).

3. L'état de la santé dentaire des enfants de l'échantillon de Montréal démontre une amélioration résultant de l'enseignement dentaire reçu pendant la visite annuelle au Centre de Recherches sur la Croissance.

4. La santé dentaire de la population infantile, en général, pourrait s'améliorer considérablement par l'application de quelques mesures dentaires préventives (fluoration, conférences dans les écoles, etc).

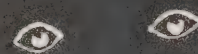
Cette étude fut réalisée grâce aux subventions (604-7-747 et 604-7-563) du ministère de la Santé nationale et du Bien-être social.

Les auteurs désirent remercier sincèrement les enfants qui ont participé à cette étude ainsi que les directeurs d'écoles, les autorités administratives et médicales de la Commission des écoles catholiques de Montréal dont la collaboration efficace a permis la réalisation de cette étude. Egalement des remerciements s'adressent au personnel du Centre pour les tâches quotidiennes: Mlle Z. Kopacova (dessins). Mmes N. Quézel (tableaux), C. Robin (revision du manuscrit), M. S. Brlek (traitement des données), Dr M. Jenicek (évaluation biométrique).

Le docteur Gabriela Beiger est attaché au Centre de Recherches sur la Croissance; le docteur J. G. Perreault est professeur agrégé et chef de la Section de Pédiodontie, Faculté de chirurgie dentaire; le docteur Arto Demirjian est directeur du Centre de Recherches sur la Croissance, Université de Montréal, Case Postale 6128, Montréal.

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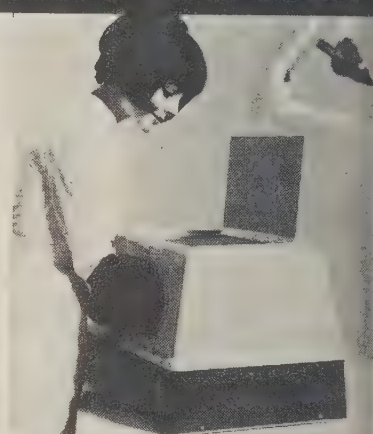


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## Book Reviews

### Minor Oral Surgery

G. L. Howe. Ed 2. Bristol, John Wright & Sons, 1971. (Available from The Macmillan Company of Canada Ltd, Toronto) 335 p. Illus. \$11.95

Only a few textbooks of oral surgery are written specifically for senior undergraduates and general practitioners. Professor Howe's second edition sets a standard in the field as a readable, well illustrated, up-to-date text.

Do not be deceived by its small size. Its wealth of information and sound practical advice are bound to make it popular with undergraduates who are often disheartened with long-winded accounts of comparatively minor procedures.

General practitioners will also welcome a book which emphasizes sound diagnosis and planning of operations and where the scope of oral surgery is levelled to what can be accomplished in a well organized practice.

Howe assumes that simple exodontia has already been mastered. Consequently the 16 chapters cover all aspects of minor oral surgery except fractures of the jaws. As the author suggests, these are admirably covered in two inexpensive paperbacks by H. C. Killey.

The chapter on management of impacted mandibular third molars is exceptionally well detailed in only 27 pages which include indications and contra-indications to removal, pre-operative assessment, interpretation of the standardized intra-oral radiograph using the classical method of G. B. Winter, root notching and perforation by the neurovascular bundle, techniques to avoid mandibular nerve damage, removal of mandibular third molars, mucoperiosteal flaps, bone removal, tooth delivery and wound toilet. In addition, there are well illustrated diagrams of the split-bone technique, removal using a bur and removal by tooth division.

The chapter on diagnosis and management of cysts of the jaws describes the latest diagnostic investigation for

detection of keratocysts, using electrophoretic examination of aspirated cystic fluid as described by P. A. Toller (1970).

More extensive textbooks frequently overlook every-day occurrences in favour of rare and exotic disorders. But here common sense is applied to the commonplace retained root. It is certainly refreshing to note again that "the mere presence of a buried root should never be regarded as a positive indication that it should be removed" and follow Howe's recommendation to read the original paper by R. W. Helsham (1960).

Apart from the occasional differences between British and North American nomenclature my only criticism is of inclusion rather than omission. One chapter on surgical treatment of periodontal disease by periodontist J. S. Zamet appears out of place. Although one could argue a relationship between periodontal disease and minor oral surgery, a more logical place for this material is in a textbook of periodontics.

*Minor Oral Surgery* should be on the shelves of undergraduates, interested general practitioners and first year graduate students in oral surgery.

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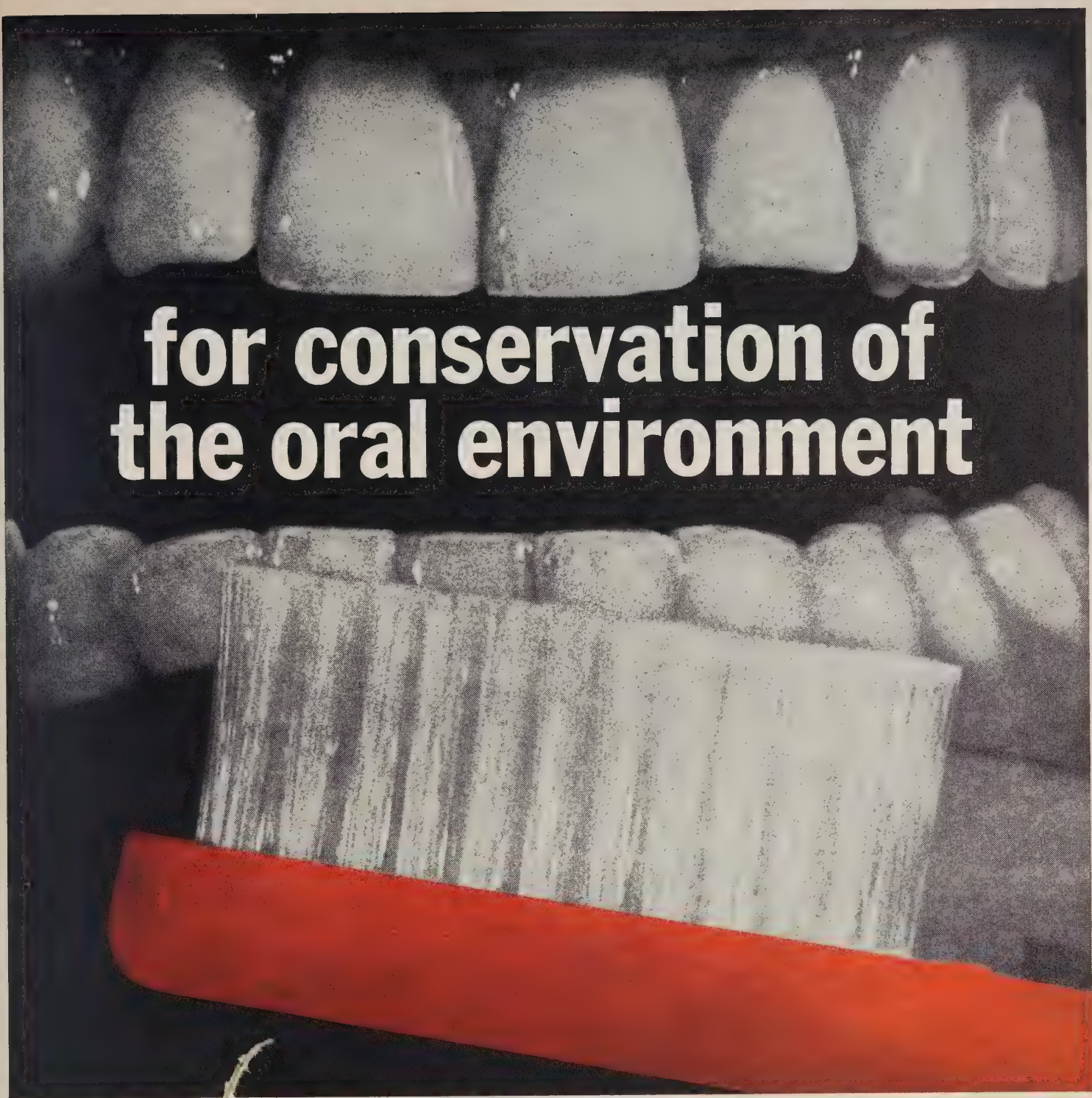
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## Manitoba's Dental Mechanics Act

Manitoba's Dental Mechanics Act is now law.

The new legislation, which came into force November 1 of this year, provides for the licensing and control of dental mechanics in the province and for the setting of standards for their practice.

Although the act received assent in the Manitoba Legislature in August of 1970, its proclamation awaited the general acceptance by dentists and dental mechanics of a set of regulations designed, according to Health and Social Development Minister Rene Toupin, "to permit effective operation of the act, and to avoid as much conflict as possible in introducing legislation that has been the subject of heated debate and hostility within the province for many years."

In announcing cabinet approval of the Dental Mechanics Act, Mr. Toupin stated that there is now "reasonable concurrence" by the Manitoba Dental Association and the Association of Dental Technicians. "Our aim," he said, "is to provide the service of the dental mechanic, with adequate safeguards, to those citizens desiring to use it."

The act prohibits dental mechanics from working in any area of a patient's mouth where there are live teeth, thus preventing them from installing partial dentures. It also prohibits use of the title "denturist" in describing the practice.

Any person wishing to use the services of a dental mechanic must first visit a dentist for a thorough oral

examination. If he is completely edentulous, the dentist will fill out a certificate of oral health outlining any visible abnormalities and stating whether or not the patient accepted a radiographic examination. This certificate will be signed in triplicate by both the patient and the dentist so that the dentist, patient and mechanic will each have a copy.

Patients who have an edentulous arch and who want a mechanic to construct a full denture to occlude against natural teeth on the opposing arch must first obtain a prosthetic prescription from a dentist. This prescription will outline what the patient should have done in the way of restorative periodontal and surgical treatment before the denture is constructed. However, this prescription is really only an itemization for the patient; the work does not necessarily have to be done before the patient sees the mechanic.

The regulations provide for the establishment of a six member committee made up of: two members from the Department of Health and Social Development; two from the University of Manitoba's Faculty of Dentistry; and two dental mechanics licensed under the act. This committee is responsible for: recommending and developing training and apprenticeship programs; qualifications and rules governing the conduct of dental mechanics; prescribing and administering tests and examinations; and determining fees to be charged under the act. It will also hold hearings on cancellation of suspended licences.

*(Continued page 416)*



## L'organisme bénévole de santé

### Une formule applicable à la santé dentaire

Depuis un demi-siècle, les organismes bénévoles de santé ont connu une évolution assez accélérée. Il faut dire que l'opportunité de leur action s'est affirmée par les effets marqués que leurs initiatives ont imprimés aux programmes de santé du secteur public. La plupart des entreprises de ce genre sont constituées légalement et elles consacrent librement leur compétence et leur énergie à promouvoir une cause, sans aucun but lucratif. Les citoyens qui en font partie s'attachent en général à l'amélioration d'un aspect particulier de la prévention des maladies et à la protection de la santé.

Plus spécifiquement, tous ces organismes ont pour but de suppléer aux services dispensés par les organismes du secteur public ou d'élargir l'action de ces derniers. Leurs fonctions varient selon la poursuite des objectifs qui ont motivé leur création. En général, leurs programmes comportent un éventail d'options diverses. Ils se proposent soit de dispenser des services destinés à contrer les atteintes d'une maladie spécifique. Soit d'éveiller la conscience populaire et de stimuler les initiatives à l'égard d'un programme de santé particulier, afin d'en démontrer la valeur, de susciter la participation du secteur public, et de persuader l'Etat d'en assumer officiellement la responsabilité. Soit de mettre en oeuvre un programme d'éducation sanitaire relatif à un domaine spécifique ou généralisé. Soit encore d'établir un service consultatif touchant les problèmes d'une maladie particulière, d'une mesure favorable à la santé ou d'appuyer l'action des organismes du secteur public.

Les programmes des associations bénévoles ont démontré le bien-fondé de leur action du triple point de vue des soins, de l'éducation populaire et de la recherche scientifique, dans les domaines de la tuberculose, du cancer, des maladies du coeur, de la santé mentale, de la santé dentaire, du diabète, de l'arthrite et du rhumatisme, de l'alcoolisme et de la drogue, de la paralysie cérébrale, de la prévention des acci-

dents, de la sclérose en plaque, de la prévention de la cécité et de la surdité, de la planification familiale, de la rééducation des infirmes et des handicapés et de la revalorisation des défavorisés.

Plusieurs initiatives de ces organismes ont donné naissance à des services dont ils avaient démontré la valeur et les méthodes d'application, grâce au dévouement désintéressé de leurs membres et à l'appui financier de clubs philanthropiques, de certaines entreprises commerciales et de souscriptions publiques. Mentionnons particulièrement qu'ils peuvent être considérés comme les pionniers des services de soins infirmiers et des cliniques de puériculture dans le domaine de la santé publique.

Dans la sphère plus spécialisée de la formation professionnelle, il importe aussi de souligner les contributions marquantes des associations professionnelles, entre autres celles de l'Association canadienne de santé publique, de l'Association médicale canadienne et de l'Association dentaire canadienne dont les activités ont aussi joué un rôle fondamental dans la création et l'amélioration des services du secteur public.

Certains milieux avaient exprimé la crainte que l'avènement de l'assurance-maladie ne mette un terme à l'action des organismes humanitaires. Il semble pourtant que ces appréhensions aient été mal fondées.

A preuve les déclarations exprimées par le Rapport de la Commission royale d'enquête sur les services de santé (Hall, 1964) spécifiant que "Ce sont surtout les organismes privés qui se sont penchés sur de nouveaux besoins, ont défini les problèmes et trouvé ou organisé des solutions. Toutefois, le volume des besoins ainsi constaté a souvent dépassé la capacité des ressources financières de l'initiative privée et les réclamations du public ont alors amené les pouvoirs publics à intervenir."

(Suite à la page 410)



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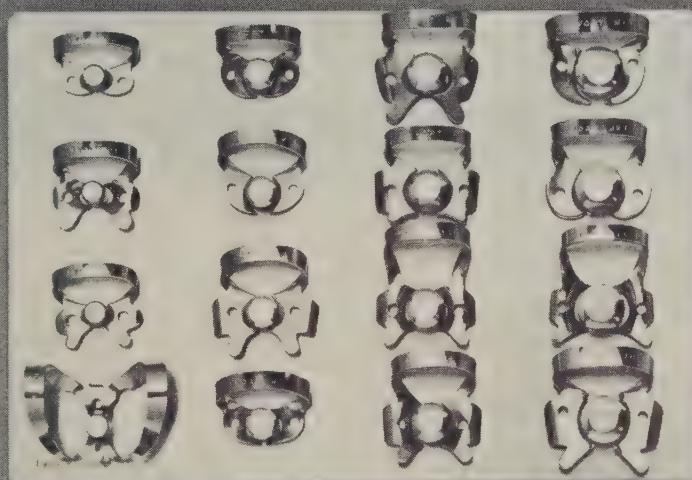


<sup>(1)</sup> Wade, A. B.,  
British Medical Journal,  
Volume III, Number 8,  
P. 280-285, 17/10/61.

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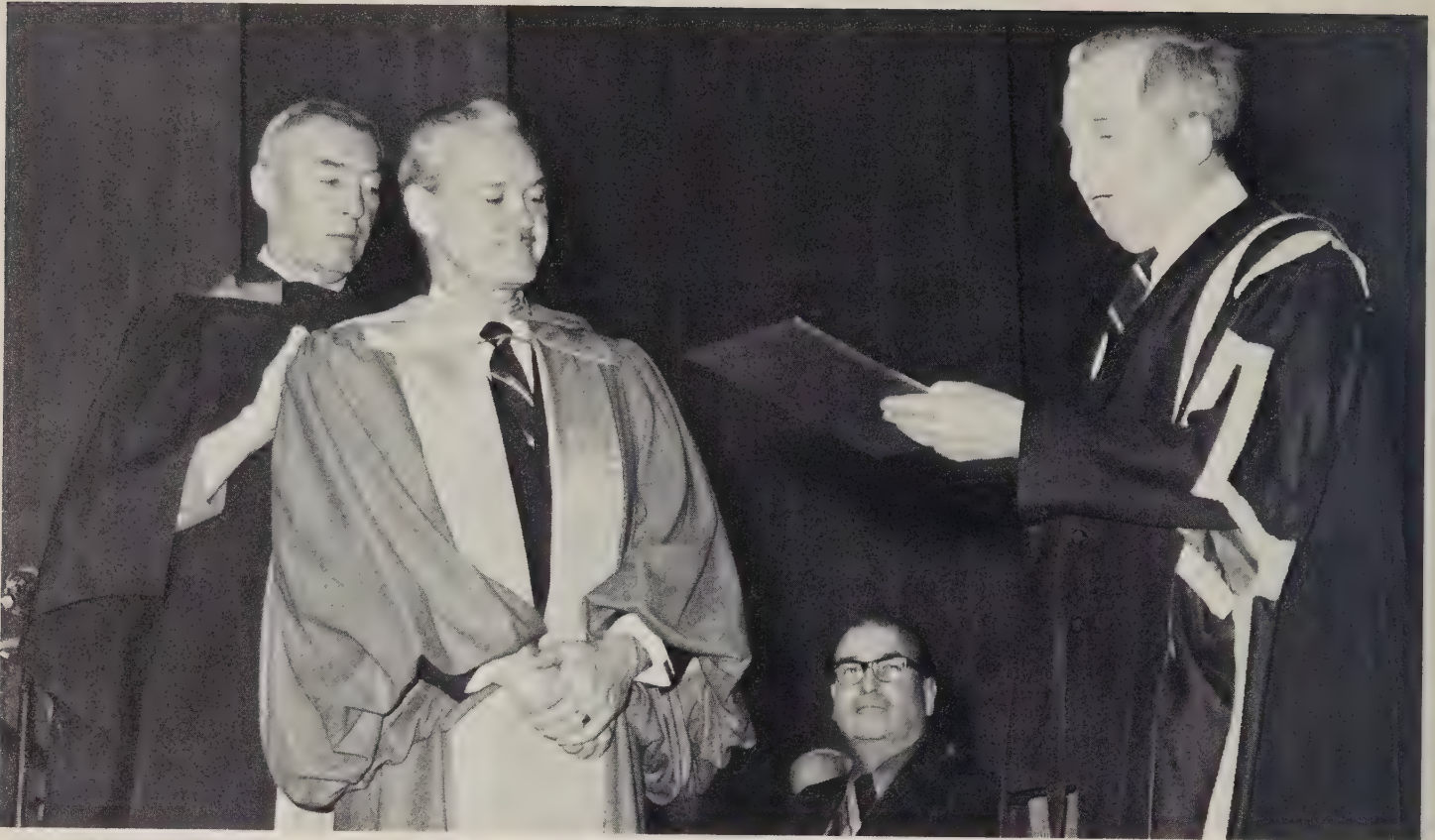
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Dr. G.W.T. Spinks (right), president and acting chancellor of the University of Saskatchewan, presents Dr. W. G. McIntosh with an honorary doctor of laws degree.

### The Association

#### Saskatchewan University confers honorary degree on Dr. McIntosh

The University of Saskatchewan recently conferred an honorary doctor of laws degree on Dr. William G. McIntosh, executive director of the Canadian Dental Association and a leading representative of Canadian dentistry throughout the world. Dr. McIntosh is the first member of the dental profession to be recognized by the university by the awarding of an honorary degree.

The presentation was made during the university's annual fall convocation.

One of the highlights of this year's convocation was the graduation of the University of Saskatchewan's first dental students. The College of Dentistry, Canada's ninth, was established on the Saskatoon campus in 1965 and the first class of 10 students was enrolled in the fall of 1968.

Dr. McIntosh has served as executive director of the CDA since 1965 and, in this capacity, is responsible for guiding the development of policy with respect to Canadian dentistry. He has represented Canada on the International Dental Federation since 1965 and has served as a member of the Federation's Council and the Commission on Dental Practice.

A native of Hanley, Saskatchewan, Dr. McIntosh spent his early years in Prince Albert where he took his preliminary education. He attended the University of Saskatchewan in 1932-33 for his pre-dental education and subsequently obtained both his undergraduate and graduate degrees in dentistry from the University of Toronto.

Dr. McIntosh practised dentistry briefly in Trenton and Oshawa before setting up his practice in Toronto in 1938. During his final 18 years in private practice he specialized in perio-

dontics. He was an associate professor of periodontics at the University of Toronto and a consultant at the Hospital for Sick Children and at Sunnybrook Hospital.

During World War II, while a major in the Royal Canadian Dental Corps, Dr. McIntosh conducted research in the field of periodontics.

Over the years he has served on many committees of the Canadian Dental Association. He was a member of the Association's Board of Governors from 1957 to 1961 and president of the organization in 1959-60.

He is a fellow of the Royal College of Dentists of Canada and of the American and International Colleges of Dentists. Dr. McIntosh is also a member of both the Canadian and American Academies of Periodontology and was president of the Canadian Academy in 1958-59. The American Dental Association made him an honorary member in 1967.



## Canada and the Provinces

### Dental plans set new trend in collective agreements

The first dental service plans to be negotiated by a major Canadian industrial union with large employers were included in the agreements signed recently by International Nickel Co of Canada Ltd, Steel Co of Canada Ltd and Algoma Steel Corp Ltd with the United Steelworkers of America.

All three companies have introduced dental plans insuring employees and their family dependants for a wide range of normal dental procedures. Each plan carries a \$25 per year deductible provision and pays 80 per cent of the cost of routine dental procedures based on the Ontario Dental Association's tariff of fees. Coverage does not include orthodontic work, crowns, bridges, full dentures or charges in excess of the ODA tariff.

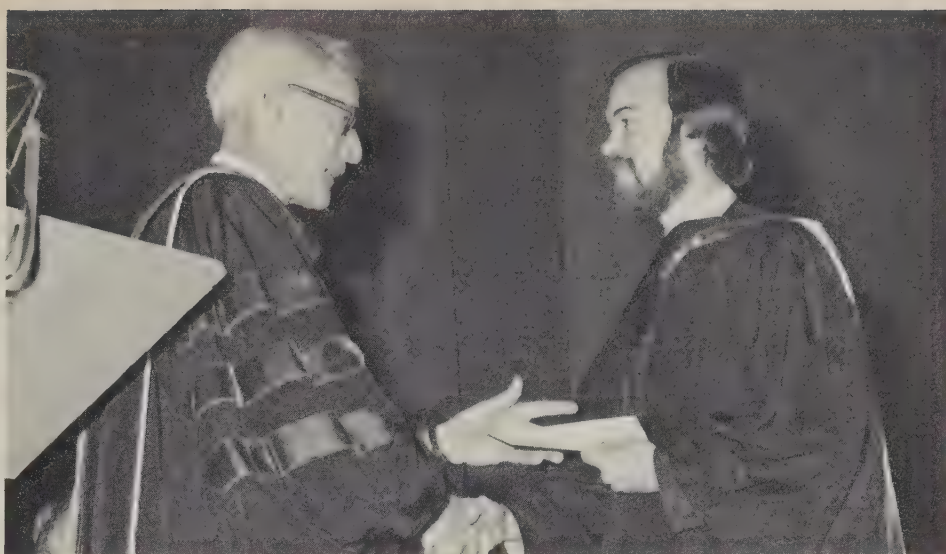
The retail food industry also established a new trend by including a portable dental plan in the fringe benefit package of two collective agreements recently negotiated: one with Dominion Stores Ltd and the Retail, Wholesale and Department Store Employees Union and the other with Steinberg's Miracle Mart Stores and their employees.

The two supermarket chains will contribute five cents for each hour worked to the union to operate the plan which is transferable from one firm to another.

### Alberta professions subjected to renewed legislative scrutiny

Dentistry in Alberta will again come under scrutiny when the reconstituted Legislative Committee on Professions and Occupations conducts hearings later this year. The committee will review existing provincial legislation particularly with respect to self-governing professions and occupations and will seek answers to such questions as:

- Are the self-governing professions working with the object of assuring that the public is served in the best manner?
- Are the self-governing professions now paying more attention to their own self-interest?



Denis Lanigan (right) of Regina was awarded the Gold Medal in Dentistry at the University of Saskatchewan's annual fall Convocation. Dr. K. J. Paynter, dean of the University's College of Dentistry, made the presentation. Mr. Lanigan, a member of the first graduating class of the College of Dentistry, was also awarded the President's Medal as the most distinguished graduate.

- Do the professions exercise complete control over admission to membership? Is such control or lack of control desirable in the public interest?

- Should there be separate professional associations and regulatory agencies?

- Should the public be represented on disciplinary committees?

- Should the professions be allowed to control licensure?

- Should there be an umbrella act setting basic standards for self-governing bodies?

- Who should set the educational requirements for the professions?

The committee is expected to report its findings to the Alberta legislature early next year and resultant legislative changes, if any, are not anticipated before the spring session of 1973.

### Health Minister endorses principles expressed in report of Wells Committee

National Health and Welfare Minister John Munro, acting on the advice of the Dominion Council of Health, recently endorsed the principles expressed in the report of the Wells Ad Hoc Committee on Dental Auxiliaries which dealt with matters relating to employment, training and regulation of dental manpower.

He also noted the council's recommendation that governments examine the report in detail and implement its recommendations in accordance with their respective priorities. These priorities include consideration of a dental program for children encompassing prevention, education and treatment.

### New appointments at Saskatchewan University

Five new appointments and two promotions at the College of Dentistry, University of Saskatchewan, have been announced. They are:

- W. A. Cotter, appointed head of the Department of Prosthodontics;

- B. M. Nowakowsky, appointed acting head of the Department of Restorative Dentistry;

- B. R. Cumming, appointed associate professor of social and preventive dentistry;

- D. L. Singer, appointed assistant professor of oral biology and lecturer in biochemistry;

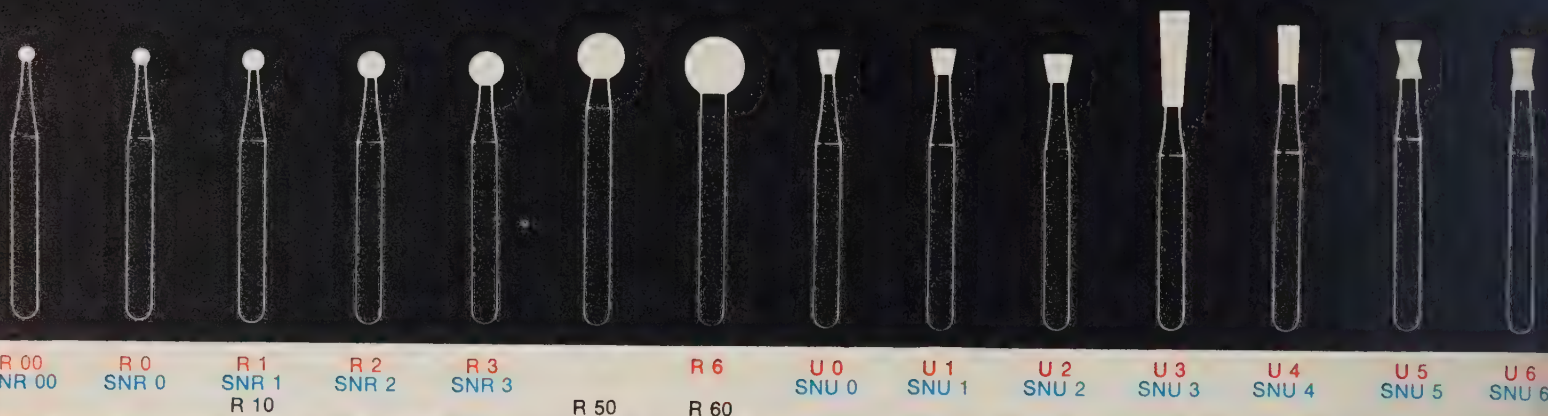
- F. A. Fernet, appointed assistant professor of dentistry and director of clinics;

- A. T. Ball, promoted to associate professor and acting head of the Department of Periodontics; and

- M. W. Dickson, promoted to associate professor of paedodontics.



# performance



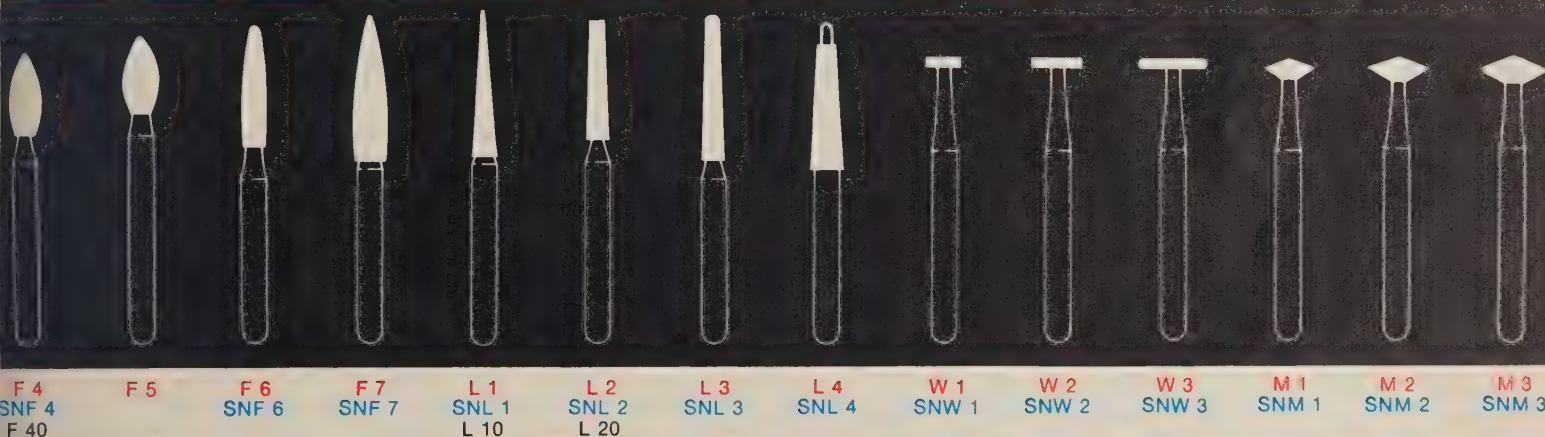
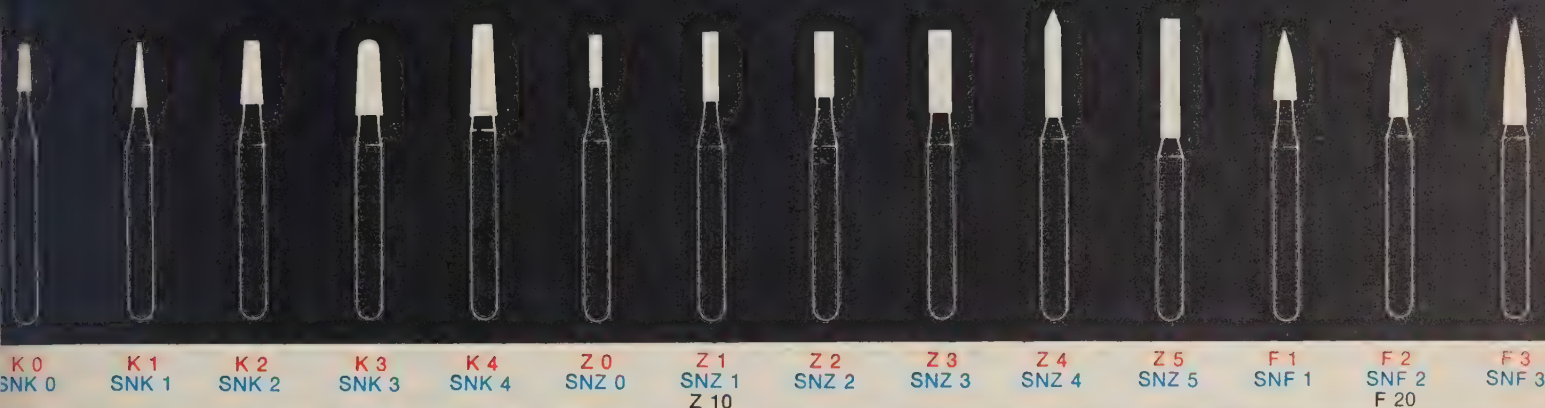
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Representatives of the American and Canadian Dental Associations met in a joint session September 11-12 in Toronto to discuss topics of mutual interest. Shown at the meeting are CDA President David K. Peters and ADA President Carl A. Laughlin.

## Dental Education

### National standards needed for continuing education

Policies and standards for continuing education in dentistry should be formulated at the national level. This was the consensus of delegates attending the first national Conference on Continuing Dental Education held in Toronto September 25-27 at the Ontario Institute for Studies in Education.

The conference was sponsored by the Canadian Dental Association's Council on Education and supported by a \$16,000 grant from the Department of National Health and Welfare.

G. S. Beagrie, assistant director, Division of Postgraduate Dental Education at the University of Toronto, served as chairman for the conference which was designed to examine all aspects of continuing education in the field of dentistry — the need for it; how it should be organized and administered; and what role governments, licensing bodies, associations and faculties should play in the systems of delivery.

Delegates agreed that continuing education is now a major entity in dental education, one requiring integrated planning and organization. They also agreed on the need for a national body to be established through which

policy and standards could be formulated on a national basis. This approach would ensure the provision of much needed research and study on the various aspects of continuing education.

A plea was made for co-ordination of all groups associated with continuing education. As Dr. Beagrie stated in his summary at the end of the conference: "The planning of courses must not rest in the future with one man in isolation but a team approach from within the faculties, associations, licensing bodies and the public will be required at both provincial and national levels."

Referring to the learning resource centre developed in British Columbia, Dr. Beagrie expressed the hope that more such centres would be established in Canada. These centres can provide dentists with pre-packaged instructional modules for use in a group setting or on an individual basis. Instructional modules, although expensive to make up, are ideal for the geographic setting of Canada. Dr. Beagrie predicted that a pilot project would be set in motion, through the national body, utilizing expert teachers representing various disciplines from across the country to make up instructional modules.

As a follow-up to the conference it was suggested that the Canadian Dental Association's Council on Education might set up a task force with broad representation from provincial and licensing bodies to examine fully the whole question of continuing education.

## Health professionals give generous support to CFDE

Contributions from dentists and dental hygienists during CFDE month (October) reached an all time high of over \$12,000.

In a report issued early this month, M. E. (Bud) Bower, chairman of the Canadian Fund for Dental Education, stated: "This generous response is most encouraging. In just 31 days dentists donated \$11,591, an increase of 11 per cent over last year, and hygienists contributed \$550, an increase of 54 per cent. Included in these totals are individual gifts of \$100 or more."

Noting that the Fund has received a record number of requests for assistance, Mr. Bower urged dentists and hygienists who have not yet contributed to send their contributions without delay to the Canadian Fund for Dental Education, 234 St. George Street, Toronto 180, Ontario.

### New program in US geared to self-assessment of knowledge and skills

The American College of Dentists is sponsoring a new educational program consisting of a series of periodic self-administered tests designed to offer general practitioners the opportunity to evaluate their professional knowledge and competence and keep abreast of new advances in all phases of dentistry.

Although such tests have been used by a number of medical specialty groups and one dental specialty (oral surgery), this is the first time that a program of this nature has been offered to an entire profession.

The program, Self-Assessment and Continuing Education in Dentistry, will be launched later this year and is expected to provide dentists with a measure of their own continuing educational progress. At the same time it will also enable each participant to compare his knowledge with that of his peers. Along with his test scores, each dentist will receive: statistical information about his relative standing in comparison with all other dentists who took the same test; the correct answers to the test questions; and an annotated bibliography for further reference and study.





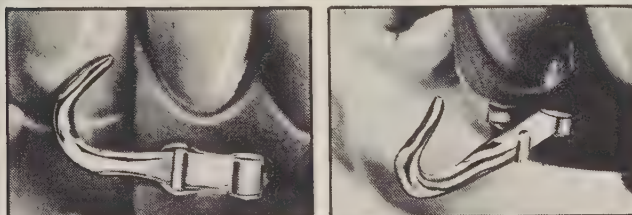
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## YOUR SECURITY

*This is the sixth in a series of articles on insurance and investment programs available through the dental profession.*

It won't happen to me! How often do we hear that comment from people considering the purchase of some form of insurance? Any insurance company can quote case after case of someone collecting on his insurance almost the day after signing on the dotted line.

Like anyone else, dentists do get sick, they do get injured and they do find themselves unable to work because of either illness or injury. Again, like anyone else, some of them are insured for some things and not for others.

How much better to have the peace of mind that insurance coverage affords.

Unlike the paid employee of a large corporation or the members of most unions dentists, as self-employed professionals, have no automatic protection for their income or overhead expense during illness. When a dentist cannot work, his income stops but his overhead continues. Nearly half of a dentist's gross income is expended to cover overhead.

Fortunately, dentists can avail themselves of the services afforded by the Canadian Dental Service Plans Inc. Included in the comprehensive services offered are plans designed to protect dentists from loss of earning ability and from the load of ongoing overheads when there is no income. This article discusses both forms of insurance.

### Disability insurance

Dentists may choose between two plans, each of which provides a monthly income of between \$400 (the minimum allowed) and \$1,500 in the event of sickness or disability. The actual amount depends upon age. For sickness, Plan One provides two years of coverage and Plan Two offers up to 10 years of coverage where inability to practise results. Although both plans end at age 65, they do pay lifetime benefits for injury.

In addition, both plans cover partial disability. A dentist may receive benefits for up to three months if he can work only half a day or less, either because of injury or following a period of total disability for sickness.

Dentists also have the option of choosing when they want the benefits to start. This is applicable to both plans. Income can continue from the first day a dentist is unable to work due to injury and the eighth day because of sickness (or the first day of hospitalization). Or, the benefits may begin on the 31st day or the 91st day the dentist cannot work because of illness or injury.

For a modest additional premium, a dentist may elect to buy either or both of two additional benefits. The first is called "basic plan plus optional extension." It extends the sickness benefit period for the dentist to age 65 if he is unable to engage in any occupation for which he is suited by reason of education, training or experience.

The second option covers accidental death and dismemberment providing a lump sum payment of a maximum of

\$100,000 for loss of life, total loss of sight, or double dismemberment. Lesser amounts cover lesser dismemberments.

The amount of basic disability or sickness insurance you may purchase through CDSPI is covered by a simple formula.

You can be protected for an amount of up to 75 per cent of the first \$12,000 of your annual income (after operating expenses) and up to 50 per cent of the remainder (after operating expenses).

Until January of 1972 the maximum permitted was \$1,000. However, as noted earlier, you may be insured for up to \$1,500 monthly. Officials of CNA Assurance revealed that in 1964 the average amount of monthly coverage bought by dentists in Canada amounted to \$375. In 1971 the figure rose to "roughly \$900 monthly."

The amount you choose to buy is limited as noted. However, your age is another important limiting factor. Age determines how much you can buy and how much you pay. The insurance is purchasable in units of \$100 only, under both plans.

Premiums are not deductible for tax purposes, but benefits are tax free.

The plans offer distinct economic advantages. It is estimated that to receive a monthly take home pay of \$1,500 a dentist would have to earn about \$2,500 net before taxes.

### Overhead insurance

The items that go to make up a dentist's overhead include: supplies and materials; support-staff salaries; telephone costs; accounting fees; rent; light; heat; equipment depreciation; and association fees.

In a typical disability or illness period, when the dentist is unable to work, these expenses must still be met even though no new income is being generated.

Except for the unacceptable alternative of closing his practice, the dentist has no choice but to maintain payment of his overhead.

Through CDSPI, ample protection for dentists is available in a variety of plans. Three choices are available. Each plan allows a choice of starting on either the eighth or 15th day of total disability.

If you are under age 50, you may buy up to \$1,500 protection per month. The amount of protection available diminishes to a minimum of \$500 per month for dentists between 60 and 69.

The length of time the insurance program operates varies between six and 18 months.

When making application for overhead expense insurance, the insuring agency requests an accounting statement covering the past six months' financial experience. The purpose is to provide the insurance company with a means of measuring future overheads when a claim is made.

The amounts which may be claimed are actual expenses and all of these are normally covered during the time of total disability.

Newly graduated dentists are eligible for this coverage too, it is worth noting. They are eligible to buy \$400 monthly of disability insurance and \$300 monthly of overhead protection. These amounts of coverage are available immediately following graduation.

*Next: Why you should include health care in your insurance program.*



## Contributors will be honoured by CFDE

Individual members of the dental health team who give \$100 or more in support of Canadian Fund for Dental Education programs during 1972 will be designated as "honour members" in the Fund's annual progress report. This announcement was made recently by M. E. (Bud) Bower, chairman of the Fund.

CFDE's progress report is published each year in the Journal and copies of the report are also sent to many dental associations and business firms across Canada.

## CDA Retirement Savings Plan

Unit values of the Canadian Dental Association Retirement Savings Plan stood as follows on September 30, 1972:

*Fixed Income Fund* \$13.175;

*Common Stock Fund* \$29.792.

Total assets (market value) of the plan were \$13,991,727.68.

There were no portfolio purchases or sales during the preceding month.

For further information please write to CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto 180, Ontario.

## Notice to CDA Retirement Savings Plan Contributors

### *Proposed amendments to the Income Tax Act affecting retirement savings plans*

The new Income Tax Act seemingly gave insurance companies advantage over trust companies with regard to the section of the Act [146 (8)] that deals with refunds of premiums on the death of a plan member.

In a life insurance form of registered retirement savings plan, a participant can designate a beneficiary in accordance with provisions contained in the various provincial insurance acts whereas, under a registered retirement savings plan, the act of designating a beneficiary would be considered a testamentary act and must be completed in accordance with formalities prescribed by the Wills Act.

Should, for example, a plan member die intestate, this would seem to mean that the refund of premiums of his registered retirement savings plan would go to the estate, and his widow could not benefit from sections 60 (1) and 61 (2) (d) of the Act.

The former section permits the beneficiary to roll over tax-free the proceeds from the deceased's retire-

ment savings plan to another registered account in her name. The latter section allows her to spread the tax burden over a number of years by purchasing a forward averaging annuity.

On September 11, 1972 the Finance Minister released a paper indicating several technical amendments to the Income Tax Act affecting retirement savings plans.

One of these amendments would provide that, where a refund of premiums from a registered retirement savings plan has been paid to an estate upon the death of the holder of the plan, and this refund has been included in the income of a beneficiary of the estate, it may be designated as a "refund of premiums received by the beneficiary." This amendment permits the surviving spouse to make use of both sections 60 (1) and 61 (2) (d) of the Act and places registered retirement savings plans in the same tax category as insurance plans.

*This article was prepared to allay any doubts raised in the minds of contributors to CDA Retirement Savings Plan in respect to their tax position and was submitted to the Journal by W. E. Jackson, administrator, CDA Registered Savings Plans.*

## Deaths

Amiot, Gilles René. 78. Montreal. Université de Montréal, 1915.

Atkinson, William. 76. Windsor, Ont. Royal College of Dental Surgeons of Ontario, 1923. 11-10-72. Survived by Emilienne (wife); Mrs. Beverly Brown (daughter); Mrs. Thomas Hargrave (sister); and two grandchildren.

Balthazar, Emile. 72. Montréal. Université de Montréal, 1926. 31-7-72.

Buchanan, Herbert Parker. 73. Croyden, England. University of Glasgow, Scotland, 1926. 8-8-72. Survived by Euphemia (wife). Honorary member CDA.

Dion, Louis Alphonse. 81. Québec. Université Laval, 1914.

Hart, Edward Reuben K. 98. Sackville, NB. University of Pennsylvania, 1898. 28-7-72. Survived by Sarah A. (wife); Donald, Cecil, Hebert, John and Edward (sons); and several grandchildren and great grandchildren.

Lewis, Archie Clifford. 82. Toronto. 20-10-72. Survived by Evelyn (wife); Dr. George A. (son); Mrs. T. D. French, Mrs. A. D. Smith and Mrs. J. R. W. Gillespie (daughters); E. T. Lewis (brother); and 19 grandchildren. Honorary member CDA.

Schram, Warren R. 75. Minnesota, USA. University of Minnesota, 1922. 23-9-72. Survived by his wife and one son.

Shumacker, Samuel Charles. 59. Toronto. University of Toronto, 1936. 6-10-72. Survived by Rose (wife).

Smith, Howard Taylor. 57. Toronto. University of Toronto, 1940. 28-9-72. Survived by Mrs. Nina

Smith (mother) and Marjorie Britton and Edna (sisters).

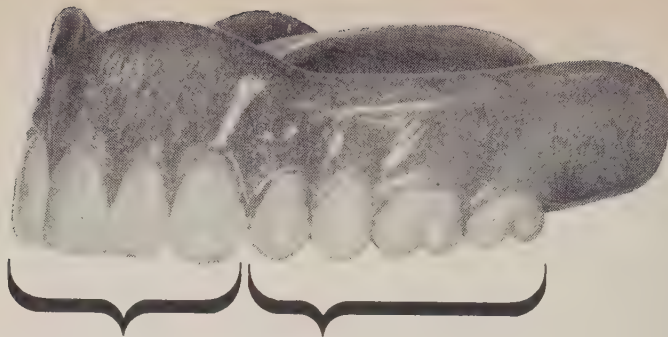
Watson, Herbert Edward. 95. Toronto. Royal College of Dental Surgeons of Ontario, 1904. 18-9-72. Survived by John and Doctors Egerton and Wynnfield Watson (sons).

Watson, Peter James. 82. Toronto. Royal College of Dental Surgeons of Ontario, 1914. 9-9-72. Survived by Edith (wife); Mrs. A. O. Jones and Mrs. J. S. Hodgson (daughters); Mrs. W. Lawrence (stepdaughter); Mrs. J. M. Graham (sister); 10 grandchildren; and one great granddaughter.

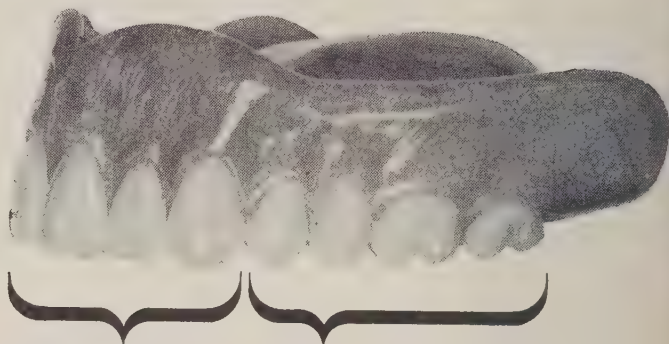
White, Stanley George. 76. Gravenhurst, Ont. Royal College of Dental Surgeons of Ontario, 1917. 11-9-72. Survived by Louise Pollie (wife); Stanley John (son); and Mrs. Jessie Liberty and Mrs. Mary Rowland (sisters).



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## L'Association

### Mademoiselle Charter nommée rédactrice intérimaire

Le docteur W. G. McIntosh, directeur général de l'Association dentaire canadienne, annonce la nomination de mademoiselle Diane Charter au poste de rédactrice intérimaire. Mademoiselle Charter qui occupait la fonction de rédactrice des nouvelles depuis décembre 1971 succède au docteur F. H. Compton, dont la démission en tant que rédacteur en chef et directeur des communications a pris effet le premier septembre dernier.

Mademoiselle Charter est infirmière diplômée et a occupé depuis neuf ans divers postes de journaliste dans le domaine de la santé. Elle fut rédactrice en chef de *Hospital Administration in Canada* pour le compte de Southam et rédactrice adjointe du *Canadian Hospital Journal*.

## Le Canada

### Un rapport réclame instamment l'intégration des Services de santé et la création de Centres communautaires de santé

Un rapport adressé par le gouvernement fédéral aux ministres provinciaux de la santé recommande l'intégration des Services de santé dans un système unique permettant l'accessibilité du public aux services médicaux, hospitaliers, communautaires, aux soins à domicile et aux services sociaux.

Les recommandations relatives au projet des Centres communautaires de santé contenues dans le rapport spécifient que la création d'un nombre re-

présentatif de Centres communautaires de santé aurait l'effet d'un catalyseur dans le nouveau système proposé.

Les travaux portant sur le projet des Centres communautaires furent dirigés par le docteur J. E. F. Hastings au cours d'un congé d'un an le relevant de son poste de professeur d'administration à l'Ecole d'hygiène de l'Université de Toronto. Au cours de cette période, le docteur Hastings présida un comité de 19 membres qui reçut plus de 200 mémoires en provenance d'individus et d'organismes, y compris l'Association dentaire canadienne.

Le rapport propose que les Centres communautaires puissent offrir un programme équilibré de services préventifs et curatifs comportant des services dentaires.

Le rapport précise que les Centres de santé n'ont pas pour mission de devenir de petits hôpitaux spécifiant que la réduction des coûts élevés des traitements dispensés à l'hôpital ne pourra se réaliser que par une diminution du nombre de lits à mesure que l'on mettra l'accent sur d'autres formes de soins comprenant des traitements externes dispensés par les Centres de santé, les programmes de soins à domicile et d'autres à couverture plus étendue.

## Chronique internationale

### L'Australie est l'hôte de la FDI pour sa session annuelle de 1973

La 61<sup>e</sup> session annuelle de la Fédération dentaire internationale sera tenue à Sydney, Australie, du 14 au 20 juillet 1973, conjointement avec le 20<sup>e</sup> Congrès dentaire australien.

La réunion de la FDI, au cours de laquelle les délégués et les observateurs suivront les sessions des commissions,

du Conseil et des comités, précédera le programme scientifique. Le dimanche 15 juillet, la FDI et l'Association dentaire australienne participeront simultanément à un programme d'activités sociales.

Les sessions scientifiques présentées conjointement par les deux organismes porteront sur les thèmes suivants:

(a) La réaction des tissus aux matériaux dentaires, y compris les réactions pulpaires; ainsi que celles des tissus périapicaux et des implants;

(b) Le traitement des lésions aux dents antérieures, comprenant le traitement immédiat, intermédiaire et à long terme des dents ayant subi des lésions présentant divers degrés de gravité;

(c) La recherche dentaire en Australie et ses applications pratiques.

En plus d'un large éventail de tables cliniques, des conférences portant sur les thèmes choisis seront données par des professionnels australiens.

Cette réunion sera la première session annuelle tenue par la FDI à l'extérieur de l'Europe et des Amériques. Elle donnera aux délégués l'occasion d'admirer le caractère imposant du paysage australien et les beautés de Sydney, à la fois la capitale et la ville la plus peuplée du pays.

L'université de New South Wales, la plus considérable d'Australie, située à quatre milles du centre de la ville servira de quartiers généraux aux activités du Congrès.

Au cours de la semaine, le programme conjoint comportera aussi un certain nombre de visites touristiques parmi lesquelles on relève un "barbecue" dans la brousse permettant aux visiteurs de voir des koalas, des kangourous, des wombats et autres animaux de la faune australienne dans un parc zoologique. Les délégués auront aussi l'occasion de se familiariser avec les mystères du lancement du "boomerang".

Au cours des visites touristiques, l'on aura l'occasion d'admirer le récif Great Barrier et le Ayers Rock, le monolithe le plus considérable au monde, situé près du lac Amadeus, au coeur de l'Australie.

On obtiendra de plus amples renseignements relatifs à l'inscription ainsi qu'au programme des activités en s'adressant au Secrétariat du Congrès, 116 Pacific Highway, North Sydney, Nouvelles-Galles du Sud 2060, Australie.



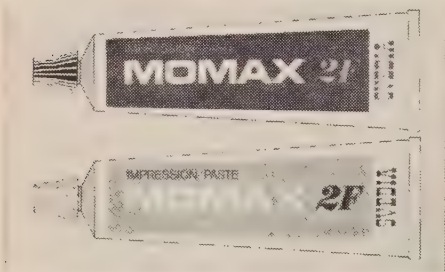
# New Products



## UNIVERSAL U-15 SCALER with REPLACEABLE POINTS

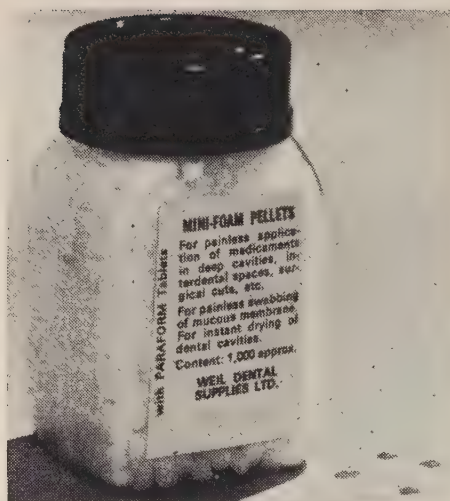
A 'FIRST' in dental instrumentation. While so far this most popular scaler design has been available only fixed to the handle, we can now offer it to you so that the tip can be replaced when required. It is therefore not necessary to throw away the complete instrument if the tip should break, or the scaler is beyond sharpening. Just replace the scaler point and a fresh, sharp, correctly shaped U-15 tip is ready for use.

Packed in a 'STARTER' kit of 2 stainless, non-slip handles and 8 stainless steel scaler points or 'REPLACEMENT' pack of 6 stainless steel scaler points.



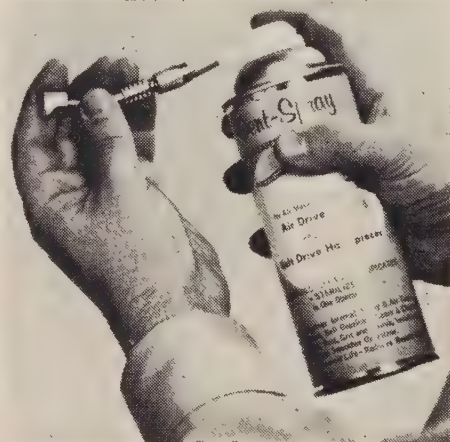
## MOMAX 2F IMPRESSION PASTE

A new impression paste based on zinc oxide eugenol basis with an easy-to-mix, non-sticky consistency. Designated 2F (two functions) because it is **firm** in the tray and **free flowing** in the mouth. Therefore it provides a correct reproduction of the substratum, the living movable tissues. It is ideal, also for trimming and rebasing dentures, while with a thin mix it is indispensable for mucostatic and copper-band impressions. A further feature is that it will easily wash from hands with soap and water. Packed in 2-tube carton.



## MINI-FOAM Pellets

The ultimate in softness, these uniform-sized foam pellets carry medication into all areas and release it at once, completely, when contacting organic substances (tissue or dentine). Also for painless swabbing of the most tender spots. Sterilized through ultra-violet rays and sterility maintained by use of paraformaldehyde tablet packed into lid of each bottle. Content 1,000 approx. per package . . . Available from WEIL.



## DENT-SPRAY Degreaser, Lubricant and Conditioner

To ensure top performance of ALL air or belt-driven handpieces this aerosol-powered product unclogs internal spray and airtubes. It cleans and lubricates turbines, ball bearings, gears, chucks, etc. It removes dirt, rust, grit and saliva, resulting in smoother, quieter, longer, trouble-free operation and reduces repairs. Ideal for loosening joints of forceps, pliers, scissors, etc. Supplied in 14 oz. push-button spray can with extra-thin nozzle . . . Available from WEIL.



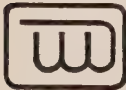
## POLYVAR — Fluoride-Varnish Cavity Liner

A Copal resin cavity liner which hardens fast interorally, but will NOT thicken in the plastic dispenser-bottle. Application by dropper top, NO dipping of pellet, therefore more economical in use. In case of spillage you lose 1/2 a drop, not 1/2 a bottle. Contains 5000 parts per million of fluoride ion, equal to 0.5%. Packed in 1/2 oz. bottle . . . Available from WEIL.



## MIRACOMBO — White interchangeable Instruments for COMPOSITES

Here is a selection of six differently shaped Delrin instruments for the placement of all filling materials, but in particular for the new COMPOSITES, which should not come into contact with stainless steel. The kit includes a selection of single-ended and double-ended handles, so that the doctor can select his preferred combination. The points are most economical, so they are readily replaced. Supplied in an INTRODUCTORY kit of 25 handles plus 20 x 6 tips . . . Available from WEIL.

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## Organisations dentaires

### Le docteur Mercier, président des chirurgiens buccaux

Le docteur Paul Mercier, de Montréal a été élu récemment président de la Société canadienne des chirurgiens buccaux à l'occasion de la réunion annuelle de la société à Harrison Hot Springs, Colombie-Britannique. Il succède au docteur A. E. Swanson de Vancouver.

Les autres membres élus au Conseil d'administration de la société comprennent les docteurs Simon Weinberg, de Toronto, président désigné; V. K. Seth, de Vancouver, trésorier; et Guy Maranda, de Québec, secrétaire. Les docteurs F. W. Lovely, de Halifax, L. Trudel, de Sherbrooke, M. G. Strelloff, d'Edmonton et E. Marks, de Vancouver, ont aussi été appelés à faire partie du Conseil exécutif.

Le docteur F. V. Walker de Dallas, Texas, a présenté des communications majeures sur la chirurgie orthodontique, le problème de l'articulation temporo-mandibulaire et le traumatisme maxillo-facial. D'autres communications furent aussi présentées par des cliniciens sur les sujets suivants:

— Paul Luxford, de Calgary: "Grefte de la moelle au moyen du papier filtre";

— Pierre Surprenant, de Sherbrooke: "Butée d'Autray";

— P. T. Smylski, de Toronto: "Ostéotomie sous-condylienne";

— Stanley Kennett, de Winnipeg: "Traitement de la difformité faciale par l'ostéotomie maxillaire";

— A. G. Parnell, de London, Ontario: "Indication de la trachéotomie dans les infections aiguës diffusées";

— Paul Mercier et H. Pham, de Montréal: "Surveillance à long terme de l'abaissement total du plancher de la bouche et des extensions des arêtes dans le cas d'atrophie mandibulaire";

— M. G. Strelloff, d'Edmonton: "Fermeture de la fistule orosinusienne. Technique de la plaque d'or" (film);

— B. K. Arora, de Saskatoon: "Ablation chirurgicale de l'hyperplasie papillaire" Rapport sur 33 cas.

Le docteur J. W. Howell, de London, président de la British Association of Oral Surgeons sera le conférencier in-

vitée lors de la prochaine réunion annuelle de la SCCB qui sera tenue au Mont-Gabriel, Qué., du 7 au 9 octobre 1973.

## L'économie

### Suite à l'assurance hospitalisation: baisse de la mortalité infantile au Québec

D'une année à l'autre, la baisse de la mortalité périnatale et infantile au Québec, entre 1961 et 1970, est très nette et même assez continue. Pour 1,000 naissances vivantes, 20.6 décès infantiles furent enregistrés en 1970, contre 31.5 en 1961, date de l'instauration de l'Assurance-hospitalisation.

En termes absolus cela équivaut à dire qu'en 1970, si le taux de 1961 avait prévalu, il y aurait eu comme c'est le cas, non pas 1,888 décès infantiles mais 2,890, soit environ 1,000 de plus.

C'est ce qui ressort d'un document préparé par le Service des études épidémiologiques du ministère des Affaires sociales concernant l'évolution de la mortalité périnatale et infantile au Québec. Ce document souligne les progrès accomplis dans la diminution de ladite mortalité et met en évidence les différentes tendances observées depuis l'instauration de l'Assurance-hospitalisation (soit, de 1961 à 1970).

Malgré cette appréciable amélioration, à l'intérieur même du Québec, des compilations par régions indiquent des disparités régionales importantes.

Alors que la région de Montréal enregistrerait en 1970, 18.1 décès infantiles pour 1,000 naissances vivantes, les régions de Trois-Rivières, du Bas-St-Laurent-Gaspésie et de la Côte-Nord affichaient respectivement des taux de 20.3, 25.6 et 30.2. Par contre, si on comparait entre elles les régions d'après la diminution de leur taux, entre 1961 et 1970, il serait aisé d'observer une diminution moins forte dans la région de Montréal que dans les autres régions, ce qui indique une certaine atténuation des disparités qui existaient en 1961 entre Montréal et le reste du Québec.

Au niveau canadien, le Québec est parmi les trois provinces à avoir le plus diminué leur taux entre 1961 et 1970, et ce tant pour la mortalité périnatale qu'infantile. Le Québec est passé en

1970 au 7ème rang pour la mortalité infantile (8ème rang en 1961) et au 5ème pour la mortalité périnatale (8ème rang en 1961). D'autre part, il a diminué son taux de mortalité infantile à un rythme plus rapide que celui des Etats-Unis, dont le taux est passé de 25.3 en 1961 à 19.8 en 1970.

Malgré ces progrès, le taux québécois de mortalité infantile en 1970, bien que se rapprochant du taux américain (19.8) ou du Belge (20.5), est encore loin derrière ceux de la Suède (11.0), de la Finlande (12.5) ou des Pays-Bas (12.8). En contrepartie, le rythme de diminution des taux de mortalité infantile est plus rapide depuis 1964 que dans l'ensemble de ces pays. Parmi ces cinq pays, seule la Finlande révèle une diminution relative de son taux supérieure à celle du Québec.

Le document du Service des études épidémiologiques du ministère des Affaires sociales démontre d'une manière claire et précise les progrès qui ont été accomplis dans la diminution de la mortalité infantile et périnatale au Québec. Une telle analyse, jointe à une étude des disparités inter ou intra-régionales, ne pourra qu'être utile à la planification dans le domaine des services sociaux, hospitaliers et médicaux, ainsi qu'aux études qu'il y aura certainement intérêt à poursuivre à l'avenir.

### Une étude sur les ateliers protégés du Québec

Le ministre des Affaires sociales du Québec a récemment retenu les services d'un sociologue, M. Lawrence Ramsay, pour effectuer une étude sur les ateliers protégés du Québec, et ce, afin d'élaborer de nouvelles structures et de coordonner les programmes de subventions.

Depuis 1969, le ministère a déjà subventionné à titre de projets-pilotes au-delà de 125 de ces ateliers protégés qui reçoivent des handicapés physiques, mentaux ou socio-affectifs. Ils ont pour objectif de leur procurer une certaine autonomie en leur fournissant des occupations adaptées à leurs possibilités productrices.

Le ministère des Affaires sociales entreprend une telle étude afin de définir, en premier lieu, les critères d'évaluation des projets en cours pour détermi-



ner si ces projets doivent être maintenus, développés, suspendus ou encore réorientés vers d'autres secteurs.

Cette première étape permettra de proposer un système d'organisation intégrant un programme régulier de soutien et un programme spécial d'innovation qui, par un ensemble de projets-pilotes coordonnés, amélioreraient quantitativement et qualitativement l'expérience publique en ce domaine.

Cette étude sur les ateliers protégés permettra également d'élaborer des structures et des modes de fonctionnement suffisamment ouverts et souples pour garantir un maximum d'initiative, de participation et d'adaptation au changement pour le bien-être des handicapés et leur intégration à la vie active.

### **Un premier centre local de services communautaires est institué par le ministère des Affaires sociales**

Le ministre des Affaires sociales, monsieur Claude Castonguay, a remis aujourd'hui les premières lettres patentes instituant un centre local de services communautaires au Québec, en l'occurrence, celui de la Basse-ville de Québec.

MM. Jacques Vandal et Roger Parent, respectivement représentants des citoyens de Saint-Sauveur et de Saint-Roch, ont reçu ces documents officiels lors de la rencontre du ministre avec les nouveaux membres du Conseil de la santé et des services sociaux de la région de Québec.

La mise sur pied d'une clinique médicale dans le quartier Saint-Roch avait déjà préparé la voie à l'implantation d'un CLSC. A la suite de cette expérience, le ministère des Affaires sociales avait conclu à la nécessité de mettre en place un CLSC qui répondrait aussi bien aux besoins de caractère social qu'à ceux de caractère médical de la population de la Basse-ville.

### **Le projet de code des professions sera grandement assoupli**

Le ministre des Affaires sociales, monsieur Claude Castonguay, a présenté jeudi, en commission parlementaire spéciale, une série de modifications au projet de loi 250 sur le Code des professions. Ces modifications visent à démocratiser encore davantage le pro-

cessus de nomination aux différents paliers des ordres professionnels, à mieux répartir le pouvoir réglementaire des autorités en cause et à changer certaines dispositions jugées non souhaitables ou difficiles d'application.

Les modifications principales présentées ici font partie de l'ensemble des corrections qui ont été apportées par suite des représentations de nombreux organismes sur la question. Plus de 150 mémoires ont été adressés à la Commission et les auditions doivent se poursuivre jusqu'à la fin d'octobre.

### *Influence gouvernementale*

Les modifications apportées visent à conserver au sein des diverses instances des ordres professionnels une présence extérieure, tout en éliminant les critiques concernant l'influence gouvernementale dans les nominations des membres externes et en clarifiant leur statut.

Cette présence extérieure est estimée apte à favoriser la poursuite par les ordres professionnels de leur vocation de la protection du public.

Ainsi, l'Office des professions sera maintenant composé de cinq membres nommés par le gouvernement, mais trois d'entre eux seront nommés à partir d'une liste d'au moins cinq noms fournie par le Conseil interprofessionnel. De même, les administrateurs nommés au Bureau d'une corporation ne le seront plus par le gouvernement mais par l'Office à partir d'une liste de 150 noms fournie par le Conseil interprofessionnel. Le membre nommé au Comité administratif parmi les membres du Bureau nommés par l'Office sera désigné par le Bureau de la Corporation et non plus par le gouvernement. Enfin, le secrétaire du Comité d'inspection professionnelle, à l'instar des membres de ce comité, sera nommé par le Bureau de la Corporation et non par le gouvernement.

D'autre part, le président du comité de discipline sera nommé par le gouvernement après consultation du Barreau du Québec. Le secrétaire de ce même comité sera nommé par le Bureau de la Corporation et non pas par le gouvernement. Il en sera de même des syndics et des syndics-adjoints.

En ce qui concerne l'article 149 du projet de Code des professions, prévoyant qu'il y a appel de toutes les

décisions du Comité de discipline devant un tribunal formé de trois juges de la Cour provinciale, celui-ci sera modifié afin de préciser que ces trois juges formeront un véritable tribunal institué de façon permanente et non un tribunal dont les membres pourraient varier d'une cause à l'autre.

### *Une meilleure répartition du pouvoir réglementaire*

Dans les mémoires présentés à la Commission parlementaire, il y avait une critique à l'effet qu'il y a une trop grande ingérence gouvernementale quant à la solution des problèmes que les corporations croient être mieux en mesure d'apprécier. Les amendements présentés répondent à cette critique.

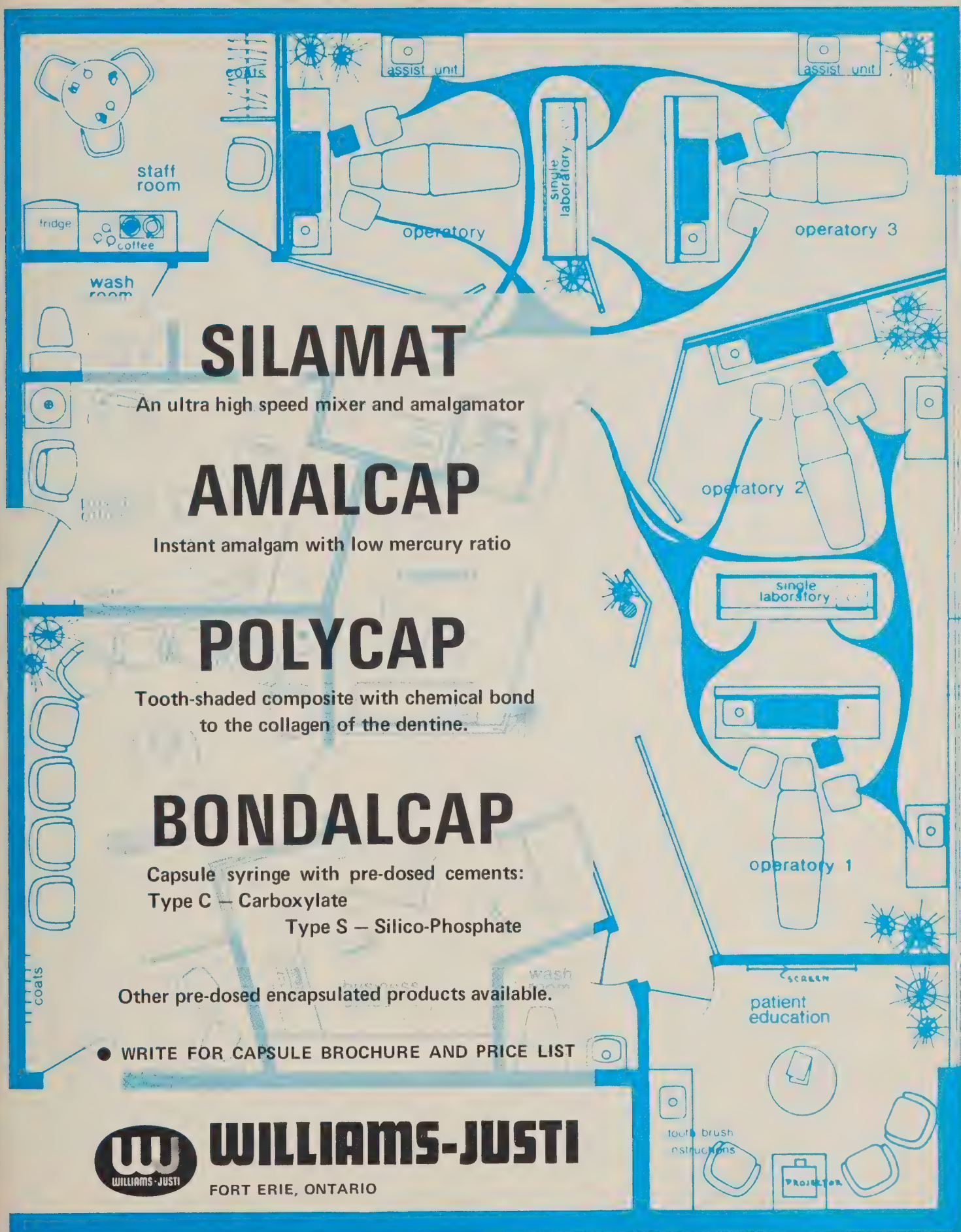
Les pouvoirs réglementaires que l'article 169 (a), (b) et (c) de l'actuel projet de Code des professions confère au lieutenant-gouverneur en conseil relativement à la détermination de la procédure du Comité d'inspection professionnelle, des règles de conservation, d'utilisation et de destruction des dossiers, ainsi que des éléments qu'un professionnel peut mentionner au public dans sa publicité, seront transférés aux Bureaux des Corporations et l'Office pourra exercer ces pouvoirs à défaut par ce Bureau de le faire.

De plus, il sera prévu qu'avant d'adopter des règlements en vertu des paragraphes (d) et (e) de l'article 169, le gouvernement devra consulter, en plus de l'Office et de la Corporation intéressée, le Conseil des universités et les établissements d'enseignement. Ces paragraphes visent la détermination des diplômes donnant ouverture à un permis ou un certificat de spécialiste ou, encore, la fixation des modalités de la participation des corporations à l'élaboration des programmes d'étude conduisant à un diplôme donnant ouverture à un permis ou à un certificat de spécialiste.

Enfin, il sera prévu que les règlements adoptés en vertu des paragraphes (d) et (e) de l'article 169, concernant les diplômes et les programmes d'étude, devront être publiés dans la *Gazette Officielle du Québec* 30 jours avant leur adoption, ce qui permettra l'intervention des personnes intéressées avant l'adoption de ces règlements.



# Time and Motion Concepts...



## SILAMAT

An ultra high speed mixer and amalgamator

## AMALCAP

Instant amalgam with low mercury ratio

## POLYCAP

Tooth-shaded composite with chemical bond to the collagen of the dentine.

## BONDALCAP

Capsule syringe with pre-dosed cements:

Type C — Carboxylate

Type S — Silico-Phosphate

Other pre-dosed encapsulated products available.

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## VOTRE SÉCURITÉ

deux formes d'assurances: l'assurance invalidité et l'assurance garantissant les frais généraux.

*Cet article est le sixième d'une série traitant des programmes d'assurances et de placements disponibles aux membres de la profession dentaire*

"Cela ne m'arrivera pas!" Cette réflexion est assez fréquente chez les personnes qui envisagent de se procurer une forme quelconque d'assurance. Pourtant, toutes les compagnies d'assurances peuvent vous citer de nombreux cas d'individus qui ont commencé d'encaisser les prestations de leur assurance pratiquement le lendemain du jour où ils avaient signé sur la ligne pointillée.

Comme tout le monde, le dentiste est sujet aux maladies, aux accidents et à l'incapacité éventuelle de travailler à la suite de ces épreuves. Comme tout le monde aussi, certains dentistes sont assurés contre des risques particuliers tout en étant sans protection contre certains autres.

Il est préférable de jouir de la paix de l'esprit que procure la protection de contrats d'assurances appropriés.

Contrairement aux employés salariés d'une grande firme ou aux membres de la plupart des syndicats, les dentistes sont leurs propres patrons et ne bénéficient pas de mesures destinées à garantir automatiquement leurs revenus et leurs frais généraux en cas de maladie.

Quand le dentiste est incapable de travailler, son revenu cesse alors que ses frais généraux s'accumulent. En fait, presque la moitié du revenu brut du dentiste est consacré à régler ses frais généraux.

Heureusement les dentistes peuvent se prévaloir des avantages offerts par le Service canadien de planification pour les dentistes Inc. Ces programmes comprennent des assurances tous risques susceptibles de protéger le dentiste contre la perte de son revenu ainsi que des charges des frais généraux. Le présent article se propose de discuter de ces

### L'assurance invalidité

Les dentistes ont le privilège de choisir entre deux contrats d'assurances dont les bénéficiaires garantissent un revenu mensuel, de l'ordre de \$400 (minimum permis) à \$1,500, en cas de maladie ou d'invalidité. Le montant exact est subordonné à l'âge de l'assuré. En cas de maladie, le premier contrat garantit les versements durant deux ans, le second des versements durant 10 ans quand l'assuré est incapable de pratiquer sa profession. Toutefois, les deux contrats couvrent l'invalidité partielle. Le dentiste assuré peut recevoir des versements pour une période allant jusqu'à trois mois s'il peut travailler une demi-journée ou moins à cause de mutilations ou à la suite d'une période d'invalidité totale résultant de la maladie.

Les dentistes ont aussi le privilège de choisir le moment où les prestations doivent débiter. Cette option est en effet valide pour les deux contrats. Le revenu peut être versé à compter de la première journée où le dentiste est incapable de travailler à cause de dommages corporels à la suite d'un accident et à compter de la 8e journée en cas de maladie (ou le premier jour d'hospitalisation). Ou encore, les prestations peuvent débiter le 31e jour ou le 91e jour où le dentiste est incapable de travailler à cause de maladie ou d'accident.

Avec une modeste prime supplémentaire, le dentiste peut aussi choisir de se prévaloir de deux avantages additionnels. Le premier, qualifié de programme de base garantissant aussi une protection additionnelle facultative, permet de prolonger la période des versements pour le dentiste jusqu'à l'âge de 65 ans quand ce dernier est incapable de remplir une occupation appropriée à son éducation, à sa formation professionnelle ou à son expérience.

La seconde option couvre la mort accidentelle et la mutilation garantissant le versement d'une somme globale de l'ordre de \$100,000 maximum en cas de mortalité, de

### Dispositions jugées difficiles d'application

Certaines dispositions jugées difficiles d'application ont été retranchées. Ainsi, les règlements du Bureau n'auront plus à décrire ce que constitue un état physique ou psychique incompatibles avec l'exercice d'une profession, ceci s'avérant une tâche très difficile.

L'article 49 sera par ailleurs abrogé parce qu'il y avait risque d'engager la délation entre professionnels. Cet article crée un devoir pour tous les membres d'une Corporation de signaler sans délai au secrétaire de cette Corporation les professionnels dont l'état de santé fait obstacle à l'exercice de leur profession.

Afin de ne stigmatiser en aucune façon le malade mental un autre article du Code des professions sera abrogé. Il s'agit de l'article 51 stipulant que l'interdiction prononcée par un tribunal ou l'admission dans un centre hospitalier au sens de la Loi des institutions pour malades mentaux entraîne la radiation automatique d'un professionnel qui en fait l'objet.

### La recherche

#### Nouvelle méthode d'avulsion dentaire

Les scientifiques américains ont mis au point un appareil produisant des oscil-

lations à haute vitesse susceptible d'extraire des dents avec plus d'efficacité et de rapidité que les méthodes traditionnelles.

L'appareil imprime à la dent en place un mouvement giratoire d'un dixième de millimètre, selon une fréquence de 100 à 500 cycles par seconde, permettant de détacher les tissus conjonctifs avec moins de traumatisme et de perte de sang que les méthodes traditionnelles. La dent entière peut être ainsi dégagée facilement sans risque d'endommager l'os de la mâchoire et les tissus adjacents.

L'appareil expérimental comprend un assemblage d'emboîtements pouvant s'adapter solidement à diverses formes de dents. La poignée renferme



perte de la vue ou de mutilation double. Des montants moindres sont prévus pour les mutilations de moindre gravité.

Le montant de base prévu pour l'assurance invalidité ou maladie que vous pouvez obtenir par l'entremise du Service canadien de planification pour les dentistes fait l'objet d'un simple formulaire.

La protection ainsi offerte peut atteindre 75 p.c. des premiers \$12 mille dollars de votre revenu annuel, après déduction des frais d'exploitation; et jusqu'à 50 p.c. du reste (après déduction des frais d'exploitation).

Jusqu'en janvier 1972, la limite maximum avait été fixée à \$1,000. Toutefois, comme nous l'avons signalé précédemment, vous pouvez maintenant vous assurer pour un montant mensuel de \$1,500. Les autorités du groupe d'assurances CNA révèlent qu'en 1964 le montant moyen des mensualités garanties détenues par les dentistes au Canada s'établissait à \$375. En 1971, ces montants atteignaient environ \$900 par mois.

Le montant de l'assurance que vous désirez vous procurer comporte les limites spécifiées. Toutefois, votre âge constitue un autre facteur qui en limite les proportions. L'âge détermine le montant garanti et celui des primes. Cette assurance peut être obtenue uniquement par tranches de \$100 et ceci pour les deux formes de contrats.

Les primes ne sont pas déductibles de l'impôt, mais les bénéfices en sont exempts.

Ce programme comporte des avantages économiques particuliers. En effet, il est établi que pour jouir d'un revenu mensuel de \$1,500, le dentiste doit réellement gagner environ \$2,500 brut avant les déductions fiscales.

## L'assurance garantissant les frais généraux

Les éléments qui constituent les frais généraux du dentiste comportent l'équipement et les matériaux, les salaires du personnel de soutien, les frais du service téléphonique, du service comptable, le loyer, l'électricité, le chauffage, la dépréciation de l'équipement et les contributions aux associations professionnelles.

Quand le dentiste traverse une période d'invalidité ou de maladie, le rendant incapable de travailler, il doit aussi faire face à ces dépenses même s'il ne dispose pas d'une nouvelle source de revenu.

Sauf l'éventualité inacceptable de fermer son cabinet, le dentiste n'a d'autre alternative que celle de continuer à s'acquitter de ses frais généraux.

Toutefois, grâce au SCPD, les dentistes peuvent se prévaloir des mesures de protection que leur procure une gamme variée de contrats. Trois options leur sont offertes et chaque contrat prévoit les bénéfices de versements à compter de la 8e journée ou de la 15e journée d'invalidité totale.

Si vous avez moins de 50 ans, vous pouvez acquérir une protection susceptible de vous rapporter jusqu'à \$1,500 mensuellement. Le montant de cette protection décroît jusqu'à un minimum de \$500 mensuellement pour les dentistes entre 60 et 69 ans.

La période au cours de laquelle l'assurance garantit les versements varie entre six et 18 mois.

La compagnie d'assurance exige que toute demande d'assurance couvrant les frais généraux soit accompagnée d'un relevé comptable couvrant les six derniers mois de l'exercice financier. Cette formalité a pour but de fournir à la compagnie le moyen d'évaluer les frais généraux futurs en vue de réclamations éventuelles.

Les montants susceptibles d'être réclamés comprennent les dépenses réelles et celles-ci sont garanties normalement en entier durant la période d'invalidité.

Notons que les dentistes nouvellement diplômés peuvent aussi se prévaloir de cette protection. Ces derniers peuvent se procurer une assurance invalidité de \$400 mensuellement et une assurance de \$300 mensuellement garantissant les frais généraux. Ils peuvent également se porter acquéreur de contrats garantissant ces montants immédiatement après avoir obtenu leur diplôme.

*Prochain article:* Pourquoi votre programme d'assurance doit aussi comporter les soins de santé.

une boîte de vitesse et une tête oscillante. L'appareil est mû pneumatiquement, un peu comme les forets à haute vitesse, au moyen d'air ou de nitrogène sous pression.

Les scientifiques rapportent que certaines dents se détachent en moins de deux secondes, alors que l'avulsion des grosses dents à racines incurvées peut prendre jusqu'à deux minutes. L'opération s'effectue ainsi neuf fois plus rapidement que les extractions de dents similaires avec des daviers manuels. De plus, cette nouvelle méthode ne cause aucune lésion, ne dégage aucune chaleur et n'a aucun effet sur les dents avoisinantes.

Bien que l'appareil n'ait été mis à l'épreuve que sur des animaux et sur

des cadavres à l'état frais, les inventeurs le croient si efficace et si simple à manoeuvrer qu'il pourra rendre service non seulement aux chirurgiens buccaux mais aussi aux omnipraticiens qui se montreront aptes à l'utiliser éventuellement pour de simples extractions.

L'on devra encore sectionner certaines dents qui sont en malposition ou dont les racines sont tordues. L'usage du davier ne deviendra pas périmé. De plus, avant de pouvoir apprécier convenablement la valeur de ce nouvel appareil, il faudra auparavant le mettre à l'essai sur des patients. Toutefois les inventeurs croient que son usage promet d'être utile aux chirurgiens dentistes.

## Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 30 septembre 1972:

*Fonds de revenu fixe* \$13,175;

*Fonds d'actions ordinaires* \$29,792.

L'avoir total (valeur marchande) du régime se montait à \$13,991,727.68.

Au cours du mois précédent, nous n'avons pas fait d'achats ni de ventes.

Pour de plus amples renseignements, veuillez écrire à: CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto 180, Ontario.



# COMMUNITY HEALTH CENTRES IN CANADA

## REPORT OF THE HASTINGS COMMITTEE

W. G. McIntosh, DDS  
Executive Director

In July 1972, The Honourable John Munro, Minister of National Health and Welfare, received the Report of the Community Health Centre Project. The project was set up on behalf of the Conference of Health Ministers of Canada because of the growing concern of both federal and provincial governments over the accelerating rate of spending on health services and because of a growing belief that community health centres may offer some relief to these spiralling cost increases while, at the same time, providing advantages in the delivery system of health services.

Dr. John E. F. Hastings of Toronto was director of the Community Health Centre Project and chairman of its 20 member committee.

Of the 23 recommendations contained in the report of the Hastings Committee the three principle ones are:

1. "The development by the provinces in mutual agreement with public and professional groups of a significant number of community health centres as described in this report as non-profit corporate bodies in a fully integrated health services system."

2. "The immediate and purposeful reorganization and integration of all health services into a health services system to ensure basic health service standards for all Canadians and to assure a more economic and effective use of all health care resources."

3. "The immediate initiation by provincial governments of dialogue with the health professions and new and existing health services bodies to plan, budget, implement, co-ordinate and evaluate this system; the facilitation and support of these activities by the federal government through consultation services, funding and country-wide evaluation."

Since references to dental services are made throughout the report, it should be studied thoroughly by every dentist. Copies can be obtained from: Mr. D. Amyot, Health Pro-

grams Branch, Department of National Health and Welfare, Brooke Claxton Building, Tunney's Pasture, Ottawa, Ontario.

A few of the report's specific references to dentistry follow:

1. "The basic dental service unit should consist of personnel whose combined skills are those usually now found in the dentist, dental hygienist and chairside assistant. The addition of a qualified dental nurse practitioner or an expanded-role dental hygienist or even their substitution for the dentist in special circumstances is a proven means of giving preventive care. If workable communications and proper supervision exist such a substitution has been demonstrated as a way to give basic dental treatment of acceptable quality."

2. "In our view, such a service unit could serve some two thousand to thirty-five hundred people, again depending upon such factors as geography, accessibility, age structure, emphasis on health education, etc."

3. "... the active and responsible involvement of people in their own health care and the care of others, is essential to our concept."

4. "... for inter-collegial relationships and task sharing to be fully possible and for other basic personnel such as the social worker and laboratory technologist to be economically and efficiently included as team members, a grouping of three or more medical and two or more dental units is necessary. Only when these two criteria are met can the service group be regarded in our view as a community health centre team."

5. "As the number of service units in a community health centre is increased, other types of basic professional and technological personnel such as the pharmacist, optometrist and x-ray technologist may be economically and efficiently added to the team. More specialized medical personnel such as the paediatrician, obstetrician/gynaecologist, internist, psychiatrist, general surgeon, orthopaedic surgeon, radiologist and pathologist as well as personnel such as the physiotherapist, health educator, community nutritionist, clinical psychologist, *denturist* and podiatrist may be usefully added."

6. "We would only note that if they are to be included, it should be in the supervised team setting of the community health centres so that their services may be used in an integrated fashion with other team members."

7. "... examples of the full concept of a community health centre as proposed in this report do not presently exist."



8. "In organized and supervised settings a team of various types of personnel, each member of which carries out specific functions definitely increases the efficiency and productivity of the physician, dentist and other professional personnel as compared to situations of solo and largely unsupported forms of practice."

9. "It is also definitely possible to substitute less highly trained professional and technological personnel for more skilled personnel in organized and supervised settings such as hospitals, health centres and group practices without any danger to public safety or diminution in quality of health care. This is also true in situations where only limited supervision is possible such as the north, provided back-up and referral services are reasonably available."

10. "The concept of community health centres we have outlined offers one setting in which the efficiencies of team work and substitution of personnel can be actively encouraged and achieved. Whether actual reductions in expenditure will result is another question which is chiefly related to disease incidence, willingness to delegate by physicians, dentists and other professionals and receptiveness to the team approach among the health centre population."

11. "We have been forcibly struck by the feeling frequently strongly expressed of many professionals and technological groups that their skills are presently not being used to full effect in the care and treatment of individuals and families."

12. "... some of these feelings undoubtedly arise from the normal ambition of any group to achieve greater status in the health manpower hierarchy and the consequent emotional and economic rewards. More often, they are the result of what are seen as unnecessary restrictions placed on the role these professionals could play by the medical and dental profession. Such restrictions are often presented as necessary steps for protecting the public and ensuring quality of care. While such motives are worthy they are not always easy to distinguish from self-interest."

13. "In the area of wider public policy, we believe that the federal and provincial governments now realize they must do more than simply "pay the bills." They must assume an effective leadership role."

14. "... it should, however, be noted that precise and rigid fixing of roles, responsibilities and functions of professionals and institutions through statute or licensing regulations would constitute a serious obstacle to the development of effective programs, true teamwork and

innovation. There are, for instance, real disadvantages and practical problems in trying to distinguish a "medical act" from a "nursing act" in a situation where changing and flexible roles are necessary."

15. "Although at present it is difficult to recommend any one specific form of payment, the committee agrees that the present form of fee-for-service payment makes the achievement of the objectives of the community health centre impossible. Some committee members feel that any fee-for-service system is incompatible with the objectives of the community health centre and the health services system."

16. "It will be necessary, not only to experiment with varying combinations of payment methods but also to develop standards, ranges for normal variation in practice patterns and monitoring and surveillance methods to assure that the interests of both society and the professionals are met. Such sensitive and crucial arrangements can only be arrived at by mutual negotiations among the health services system and the professions concerned."

17. "Provincial manpower policies should be interrelated in a national manpower policy and clearing house system to the fullest extent possible in order to get the benefits of a nation-wide use of manpower resources."

18. "To ensure effective community and individual involvement in the mechanisms of the health system, there must be an effective "lay" that is, non-professional, participation, and representation on the regulatory bodies of the health professions. Professional statutes should be amended where necessary, to ensure that no profession can directly or indirectly regulate the members of another profession or occupation."

19. "Admission requirements for the various health professions should be set jointly between the educational institutions, the profession concerned and the public interest as represented by government to assure courses which realistically balance the educational needs of the individual in modern society and the functions he will be expected to fill in the health services system."

20. "Public schemes for financial coverage will have to be extended to forms of basic care other than hospitalization and physicians' services, such as extended care, home care, out-of-hospital prescribed drugs and dental services."

*Is the dental profession ready to respond responsibly to these proposals?*



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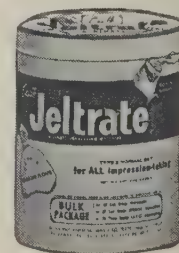
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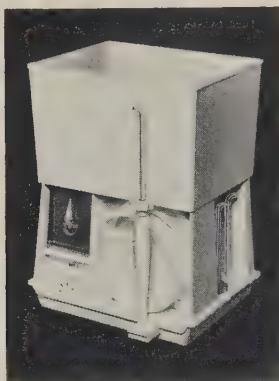
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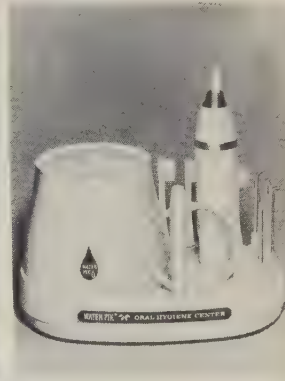
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A scenic photograph of a coastal village. In the background, a white lighthouse with a red top sits atop a hill. Below it, a large, weathered wooden building with a dark roof is situated on a grassy slope. Several small boats are moored in the water in front of the building. In the foreground, large, jagged, reddish-brown rocks are scattered along the shoreline. The water is a deep blue-grey color. The sky is a pale, hazy blue.

# THE TATAMAGOUCHE PROJECT

*Photo courtesy Canadian Government, Transport Board*





# A Maritimes experiment

The village of Tatamagouche is situated amongst the rolling fields and scenic woodlands along the edge of the Northumberland Strait, halfway between Amherst and New Glasgow. Because of its location the village is a popular stopping place for travellers on business or vacation and, during the summer months, plays host to a large number of tourists visiting the local museum, the Balmoral Grist Mill or picturesque Drysdale Falls.

Although the population of Tatamagouche stands at only 700, it is a commercial, educational and medical centre for the region and its resources serve the needs of three to five thousand people in the area. The village boasts a 32-bed cottage hospital which is of considerable social and economic importance to the region. It also has an elementary school and a high school employing a total of 30 teachers.

A large creamery located in the village is the focal point of industry. Two car dealerships and a well stocked cooperative supermarket are major drawing factors for the large population which the village serves.

Farming plays a major role in the economic lives of the families in this part of Nova Scotia. However, changes are currently underway in the structure and setup of farms in the region. Small farms are being amalgamated into larger ones, resulting in fewer people working the land. In addition, farms along the shore are being divided up into individual lots for vacation cottages.

The population of Tatamagouche is growing steadily and most of the people have a high level of education. Although the proportion of elderly people in the village is high, much attention is focussed on the young with recreational activities organized throughout the year. The people of the village have a strong tradition of working together and have been repeatedly successful in raising money for community projects.

The Lions Club is an active force in Tatamagouche and provides resources and money for such projects as the dental clinic and the new recreation centre now under construction.





J. B. MacLeod (right) assists K. A. James in the summer clinic set up in Tatamagouche, Nova Scotia.

## The Tatamagouche project: An experiment in dental education

**B. P. Kearney, DDS**

**J. D. McLean, DDS**

**Halifax**

In recent years dental educators have become increasingly concerned with programs designed to acquaint students more fully with the profession's role and responsibilities in community service. Most schools have therefore introduced courses in social and community dentistry; several have even established new departments to organize and direct the students. As might be expected, the approaches have varied. In some schools an attempt has been made to give students practical experience in dealing with community groups such as the physically or mentally handicapped, the aged or the disadvantaged. The program at Dalhousie University provides an opportunity for students to come in contact with a broader spectrum of the community than is possible within the traditional clinic experience at a dental school. There, the undergraduate deals with specific groups, mainly a low-income segment of the population and generally those who seek and appreciate dental care.

The concept of field service experience was developed to enable students to:

- Contact a broader cross-section of a community and thus gain a clear impression of society's desires, motivation and expectations in dental health;
- Experience a program of education and prevention and observe its effectiveness, particularly the extent and rate at which results can be achieved;
- Learn how to cooperate with community groups and agencies such as public health physicians and

nurses, social workers, home and school organizations and service clubs;

—Integrate more effectively the services of the dentist, dental assistant and dental hygienist; and

—Gain a useful summer experience related to their profession.

While not an educational objective in itself, the project was expected to augment the delivery of dental care in the community in which it was carried out. In addition, we hoped that some of the students who would otherwise follow the general trend of establishing practice in larger urban areas might be attracted back to these centres. We also thought that the introduction of the service might alter local attitudes and thus favour the establishment of dental practices in the area.

Because of the possibility of making field service experience a regular part of the undergraduate curriculum, the faculty wanted to test the concept, using a team of students during their normal vacation period. The community chosen for the initial venture was therefore carefully selected. It had to be in an area without resident dentists, where dental services were not readily available, and which was at least 40 miles from a practising dentist. It was considered important to select a centre which had demonstrated a community spirit of cooperation in public ventures in order to find a group of interested and cooperative citizens. Because in the initial phase the dental equipment was to be borrowed from the university clinic and established in an improvised manner, it was necessary to find a community within a reasonable distance from Halifax so that installation, maintenance and repairs could be effected with minimal delay. As faculty members were asked to supervise the program on a voluntary basis and because we wished to have a situation reasonably attractive to the students, some regard was



given to the environment and the accommodations. With these points in mind, the program planners selected the community of Tatamagouche, Nova Scotia.

Contact was made with the provincial government, the health officer for the region and the district health nurse who was well acquainted with the community. She proved to be of invaluable assistance in providing information on preschool and school children of the appropriate age groups. With her cooperation, we invited the local home and school association, the Lions Club and other interested citizens to establish a local committee to cooperate with the program director, it being assumed that a successful program would require direct community involvement both in the planning and in the meeting of expenses.

### Personnel

Initially, we selected two senior dental students to provide the dental care, and two dental hygiene students to carry out the preventive procedures and education. In the first year the dental hygienist from the provincial department of health in the region actually filled one of these positions. Each student operator had a second or third year student to act as chairside assistant. Additionally, another undergraduate was employed as co-ordinator and performed general duties such as processing of radiographs, maintenance of supplies and central sterilization. The student staff was increased to three operators in the second year of the program and to four in the third with a parallel increase in junior students for chairside assistance.

Members of the faculty, both full- and part-time, volunteered their services for a period of one or more weeks. Basically, they supervised the quality of service and assisted in the management of any unusual problems. At the same time, they attempted to avoid interference with the student-patient relationship, since service rather than technical instruction was the prime goal, in contrast to the normal clinical operation of the dental school.

A voluntary receptionist was provided locally. Her main function was to arrange appointments and, with her knowledge of the people of the community, she could establish day-to-day liaison to assure an adequate flow of patients—a very important function in an operation of this type.

### Accommodation and meals

The local committee was asked to provide the funds for accommodation and meals for the students and this they did by a variety of fund-raising projects, through the service groups, the home and school association and by individual efforts. The committee members obtained permission from the school authorities to use office and staff rooms to house the students. Beds and bedding were acquired to provide a reasonably comfortable dormitory for the male students, and the hygienists and female students were billeted in private homes. The committee also made arrangements for the feeding of the student group; in the first year at the adjacent community hospital, the following year in the church hall and during the third summer in the high school cafeteria. Meals were prepared and served by a local woman engaged by the community.

### Clinic and equipment

With the fine cooperation of the local school board and the teaching staff, the dental clinic was established in the home economics room of the high school. This large, airy room equipped with numerous electrical outlets, sinks, cupboards, water and waste disposal lent itself well to adaptation as a temporary clinic, with sufficient space at one end for a reception desk and an adequate waiting area.

Necessary equipment to provide operating spaces for each of the senior dental and hygiene students and an x-ray bay was transported to Tatamagouche. Each treatment unit had air turbine and belt-driven handpieces for the operator and two operating stools. The hygienists were provided with a slow speed handpiece and one stool. No attempt was made to separate the operatories from each other, with the exception of the x-ray area which was shielded on three sides by leaded screens. Compressed air was supplied by equipment purchased for the purpose and high volume suction was provided by portable evacuators. Considerable ingenuity was displayed by the equipment technicians in producing a functional and pleasing arrangement.

### Operation of the clinic

It was the original intent to restrict the service to pupils attending the elementary school in the town, but for a variety of reasons this was not followed. The result was that too many patients were accepted in the

Bitewing radiographs were taken for each patient. The student shown below is J. A. MacLean.





first year and the objective of providing complete care was not possible. The difficulties became apparent to the community committee as well as to the university sponsors; therefore in succeeding years the limitation to one school population was adhered to and, as the program developed, it was possible to add additional age groups.

Prior to commencement of the summer clinic, consent forms, which included a medical history questionnaire, were completed by the parents of all eligible children and returned through the district health nurse. With this information at hand the initial examination could be confined essentially to the oral structures and performed fairly quickly. Examination included bitewing radiographs, supplemented by periapical or occlusal views as indicated. The paedodontic record in regular use at the faculty clinic was used for documentation and treatment planning.

Following the examination, the children were given appointments for preventive and restorative treatment. To the extent possible, their first appointment was with the hygiene students but the relatively large numbers involved precluded strict adherence to this concept. Appointments were normally made on an hourly basis and telephone reminders went to each family on the day preceding the next appointment. As a general rule a steady flow of patients was maintained as this permitted scheduling substitutes if any appointments were likely to be broken.

As the majority of patients lived outside the town limits, every effort was made to arrange appointments for family or neighbourhood groups to ease the transportation problem. As a result, many parents and children spent a considerable time in the waiting area. Recognizing that this provided an opportunity to reinforce the children's individual preventive instruction and to instruct and motivate their parents, audiovisual equipment was installed and appropriate film strips were presented periodically throughout the day.

### Financial support

Financial support for the program was obtained through a grant from the Canadian Fund for Dental Education for the first summer and subsequently

through National Health Grant 603-22-1 made by the Department of National Health and Welfare. The students were paid a sum roughly equivalent to that of similar students on Medical Research Council summer projects and other forms of earnings from summer jobs. Faculty members were provided with a travel allowance and a grant to cover the cost of accommodation. Some staff members chose to live in a local motel, others in a nearby cottage at a beach area or in furnished accommodation in the town. The local committee responded well in making the arrangements for all accommodation.

The faculty planning committee felt that it was highly desirable to have at least some participation in the program by the community generally and by the individual recipients of service. With this in mind, a token fee of \$2 per visit was assessed, although in some instances, with the guidance of the health nurse, this was either waived or covered by the community group funds. No charge was made for the educational and preventive components of the program to conform with existing provincial dental health policy.

### Examination of objectives

The original intent of the field experience had to be modified to the extent that only a selected child population was served by the clinic. This did not create particular concern since it was felt that, at least in this part of Canada, any government program for delivery of dental service to the community would probably be based on the child population and preventive health care programs. Despite this narrowing of the spectrum of the community to be served, there was considerable contact by the students with members of the community. This extended from their exposure to the children and their parents in the clinic, through contact with the young adult population on the softball field, to picnics and social gatherings arranged by the community leaders. Evening coffee in the local restaurant and occasional visits to the Legion hall provided opportunities for discussion and awareness of the community's thinking in matters of dental health.

Through the cooperation of the local school board the dental clinic was established in the home economics room of the local high school.







Staff of the 1970 summer project left to right: B. W. Sandham; J. A. MacLean; J. R. Sandelli; E. K. Parsons; J. B. MacLeod; K. A. James; B. Cochrane; D. D. Silver; D. Munroe; L. Shore; P. J. Porter. Mrs. Silver is a staff member of the School of Dental Hygiene. Absent from the photograph is Dr. D. P. Cunningham, clinic supervisor.

There is ample evidence attesting the community's regard and appreciation for the presence of the students over these three summers and for their efforts to improve dental health for the community's youngsters. There is considerably less evidence that the students' exposure of 10 weeks increased their appreciation of the community's problems or generated an enthusiastic desire on their part to do something about them. It was thought that this experience might motivate some students to practise eventually in such a location as opposed to an urban centre. To test this hypothesis the services of a sociologist were obtained during the summer of 1970. By means of questionnaires and interviews before and after the project, an attempt was made to elicit and evaluate attitudes affected by the summer experience, but the results were disappointing. Perhaps more thorough, in-depth questioning might have produced more meaningful information.

The introduction of a program of education and prevention at Tatamagouche has been effective over a period of two years as evidenced by the increased number of children categorized as dentally fit or "completed." The number rose from 97 (30 per cent) in 1970 to 219 (74 per cent) in 1971. This very significant increase cannot be attributed solely to education and preventive measures but neither can it be assumed that purely restorative procedures would have produced such an improvement in the dental health of this population.

Unfortunately, the full impact of such an improvement may be lost on the individual student as the team members shift from year to year. The students on the first project were appalled by the oral conditions they encountered in this non-fluoridated, den-

tist-deficient locality and by the immensity of the task before them. To a lesser extent, a similar reaction was apparent in the second year, but by the third summer, oral conditions in general were not unlike those seen in the faculty clinic. When field training becomes a part of the regular undergraduate curriculum, it will be important to arrange for all students to have some experience in a beginning program.

Cooperation with other community groups and agencies is essential in the Tatamagouche situation if the project is to function at all. There was frequent liaison with the public health nurse and members of the local committee and to a lesser extent with the welfare agency and the one physician practising in the area. Much of the liaison must involve the staff members before and during the project if clinical and administrative efforts are to be effective. Not all members of the student team were directly involved but all were aware of its importance.

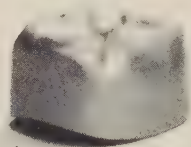
Dalhousie dental school experiences certain difficulty, as do other schools, in effectively integrating the services of the various members of the clinical team. It is not suggested that this aspect of training has been disregarded, but certain practical difficulties interfere with attaining a desirable level of experience. These include limitation of facilities, insufficient dental assistant staff and curriculum conflict. In Tatamagouche it has been possible to surmount some of these difficulties and approach an effective integration of team members. Each of the senior students had his own assistant, a junior student, and together they attained a reasonable level of four-handed proficiency after

*(Continued on page 413)*



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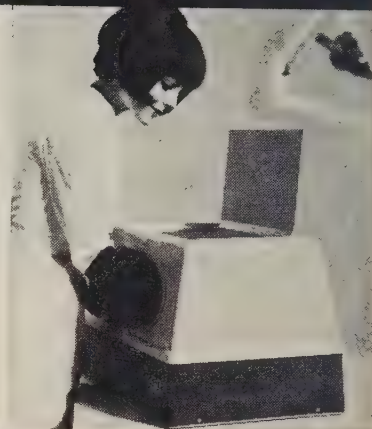


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## Comparison of three cavity base materials under amalgam restorations

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*This study evaluates zinc phosphate, calcium hydroxide and zinc polycarboxylate cements as cavity bases under amalgam restorations. Compressive and diametral tensile strengths of the materials were measured and their solubilities determined. Cavity preparations were made in extracted teeth and restorations of amalgam were placed over each base. In half the samples the base material was exposed and all were stored in distilled water or citric acid solution at pH5 for periods up to six months. The bases were examined for hardness and disintegration and the sectioned teeth were observed microscopically. Calcium hydroxide base displayed low strength, high solubility and ready disintegration. Only slight surface disintegration was observed for the exposed zinc phosphate and zinc polycarboxylate bases.*

*Cette étude comporte l'évaluation des ciments au phosphate de zinc, à l'hydroxide de calcium et au polycarboxylate de zinc utilisés comme bases aux obturations en amalgame. Les chercheurs ont mesuré la résistance à la compression et à la tension diamétrale de ces substances ainsi que leur dissolubilité. La préparation des cavités fut effectuée sur des dents extraites et les restaurations à l'amalgame furent placées sur chaque base. La substance de base de la moitié des échantillons fut exposée et tous les échantillons furent ensuite déposés dans l'eau distillée ou une solution d'acide citrique à pH5 pour une période allant jusqu'à six mois. Les bases furent examinées pour en éprouver la dureté et la désintégration et les dents sectionnées furent soumises à des examens microscopiques. L'hydroxide de calcium présente peu de résistance, une dissolubilité élevée et une désintégration facile. En revanche, les bases au phosphate de zinc et au polycarboxylate exposées ne présentèrent qu'une légère désintégration de surface.*

The use of a base under amalgam restorations has been advocated clinically for many years. The base material provides protection for the dental pulp during amalgam condensation and acts as a thermal and electrical insulator. Zinc phosphate, calcium hydroxide and zinc polycarboxylate cements are used routinely for this purpose. However, recent observations have revealed total loss or disintegration of the cavity base under amalgam in a significant number of extracted teeth. This fact has been noted by several dentists<sup>1, 2</sup> when the amalgam restorations were placed directly over calcium hydroxide bases.

Chong, Swartz and Phillips<sup>3</sup> determined the minimal compressive strength required by a base at the time of amalgam condensation to be only 100 to 170 psi, which may be achieved after allowing most types of cement to set for seven minutes. This strength was adequate to resist any displacement during amalgam condensation. However, calcium hydroxide bases showed high deformation at seven minutes when Plant and Wilson<sup>4</sup> compared the deformation curves of the materials with the age of the specimens under a load equivalent to the condensation pressure for amalgam.

This study was designed to measure the compressive and tensile strengths and solubilities of three base materials: zinc phosphate, calcium hydroxide and zinc polycarboxylate cements. It was designed to observe the function of the materials as bases under amalgam restorations in extracted teeth which were stored in distilled water or citric acid at 37°C for time intervals up to six months.

### Materials and methods

The materials chosen as being representative of a zinc phosphate cement, a calcium hydroxide cement and a zinc polycarboxylate cement are shown in Table 1. They were manipulated in accordance with the manufacturers' instructions.

Samples were prepared for measure of compressive and diametral tensile strength, with the bases allowed to set at 37°C in distilled water and at 37°C in 100 per cent relative humidity. Strength values were measured at 15 minutes, one hour and 24 hours. Sample



## Materials used in the study

Table 1

| Material                  | Manufacturer | Batch No.  | Liquid : powder ratio |
|---------------------------|--------------|------------|-----------------------|
| Calcium hydroxide (Dycal) | Caulk        | 1370       | 1 Gm:1 Gm             |
| Zinc phosphate (Tenacin)  | Caulk        | 6355, 4155 | 1.3±0.15 Gm:0.5 ml    |
| Polycarboxylate (Durelon) | ESPE         | 1267, 215  | 1.6±0.05 Gm:0.5 ml    |

tion of porosities and disintegration. The surfaces were photographed at magnifications of x5, x10 and x20 (Xenon light source, Mirax camera).

## Results

Values for compressive strength, shown in Table 2, parallel those of other papers.<sup>3, 4</sup> However, using split moulds of stainless steel, the shortest time required to obtain any reproducible results for strength values for Dycal and Tenacin cements was 15 minutes. Final compressive strength values were similar for samples stored at 100 per cent relative humidity (Table 3). However, the one hour strength values are significantly higher for samples stored at 100 per cent relative humidity.

Compressive strength after storage in distilled H<sub>2</sub>O at 37°C

Table 2

| Material | 15 minutes psi | 1 hour psi | 24 hours psi |
|----------|----------------|------------|--------------|
| Dycal    | 600±200        | 860±280    | 1450±210     |
| Tenacin  | 1060±120       | 9800±1200  | 9350±1300    |
| Durelon  | 4000±1500      | 4800±1500  | 8400±600     |

Compressive strength after storage in 100 per cent relative humidity at 37°C

Table 3

| Material | 1 hour psi | 24 hours psi |
|----------|------------|--------------|
| Dycal    | 1490±220   | 1220±280     |
| Tenacin  | 10800±500  | 8900±3200    |
| Durelon  | 5800±600   | 8900±1200    |

discs were prepared for solubility measurement in distilled water and in citric acid buffered to pH5 at 37°C. Solubility was measured at intervals of one day, one week and four weeks using the formulation of the ADA specification for cement solubility.<sup>5</sup>

To observe the bases under amalgam restorations, Class I cavity preparations were made in intact, non-carious, extracted bicuspid and molars. The preparations were lined with a thick or a thin layer of base, 1.5 mm and 0.5 mm respectively. The placement was completed within three minutes and the specimens were placed in a humidior at 37°C. Specimens were removed after seven minutes from the time of mixing for condensation of amalgam. Amalgam (fine cut alloy, Caulk; mercury alloy ratio 1:1) was hand condensed on each base. The restoration was completed within 15 minutes and finished with hand instruments.

The specimens were stored immediately at 37°C in distilled water or citric acid at pH5 for periods of one week to six months. The apices of the teeth were sealed to prevent any contact with the solution. For those samples with the base to be exposed to the solution, a hole 1.5 mm in diameter was drilled to the surface of the base, using a fissure bur at high speed without water coolant, two hours after the amalgam was condensed.

After storage the exposed bases were examined with a dental explorer for hardness and to detect any surface disintegration. Each tooth was sectioned with a carborundum blade on a thin sectioning machine (Bronwill Universal, Rochester, NY) and the base was examined with a metallographic microscope (Unitron BNX-11). Most samples were stained for better resolu-

Diametral tensile strength after storage in H<sub>2</sub>O at 37°C

Table 4

| Material | 1 hour psi | 24 hours psi |
|----------|------------|--------------|
| Dycal    | 160±40     | 220±30       |
| Tenacin  | 460±70     | 840±80       |
| Durelon  | 780±120    | 1250±70      |

Solubility after storage in H<sub>2</sub>O at 37°C

Table 5

| Material | 1 day % | 1 week % | 4 weeks % |
|----------|---------|----------|-----------|
| Dycal    | 8       | 29       | 39        |
| Tenacin  | 0.09    | 0.31     | 0.47      |
| Durelon  | 0.06    | 0.31     | 0.60      |

Solubility after storage in citric acid (pH5) at 37°C

Table 6

| Material | 1 day % | 1 week % | 4 weeks % |
|----------|---------|----------|-----------|
| Dycal    | 11      | 85       | excessive |
| Tenacin  | 0.10    | 0.60     | 0.80      |
| Durelon  | 0.07    | 0.60     | 0.90      |

Diametral tensile strength values (Table 4) show that after one hour Dycal samples have a low value, with very little increase after 24 hours. Both Durelon and Tenacin cements have greater tensile strengths.

Solubility of the bases in water at 37°C (Table 5) indicates that Dycal is a hundred times more soluble than either the Tenacin or Durelon samples. This is maintained when the specimens are stored in citric acid at pH5 (Table 6). Four of the six Dycal samples stored for four weeks had disintegrated before the end of the test period.

Extracted teeth were taken from distilled water or citric acid (pH5) at each interval and the base material



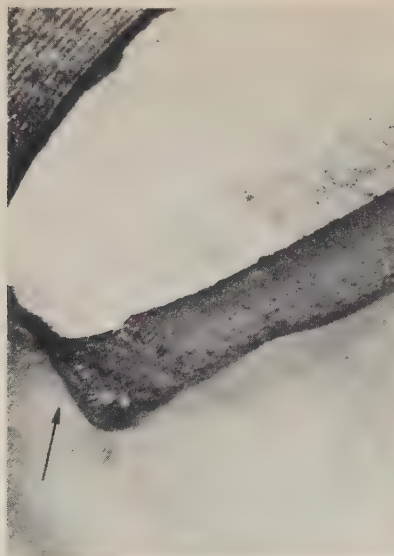


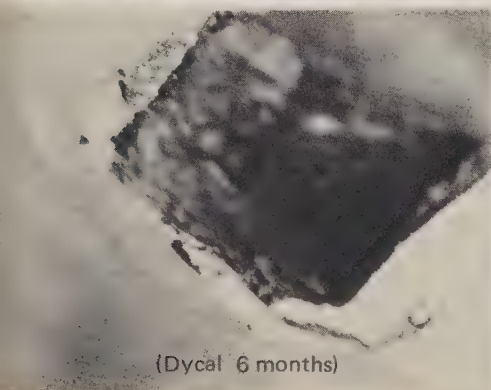
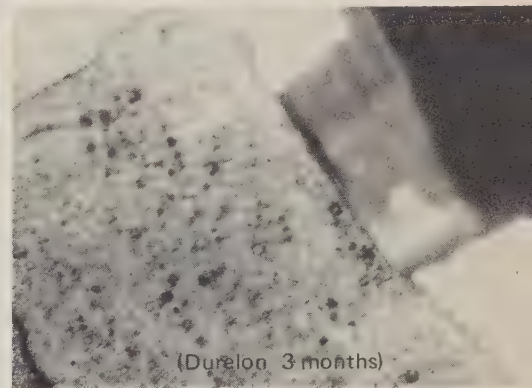
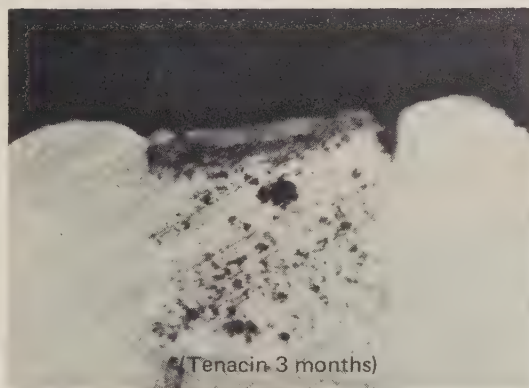
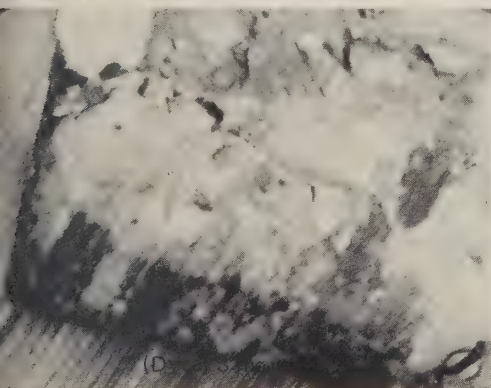
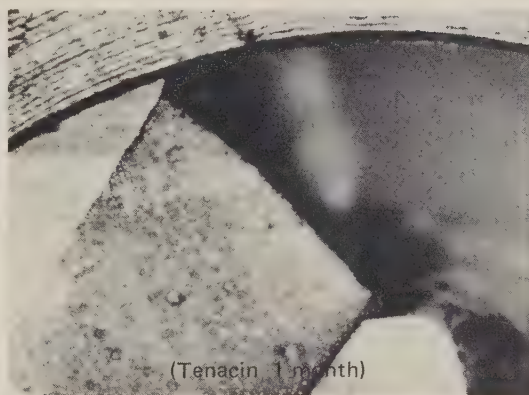
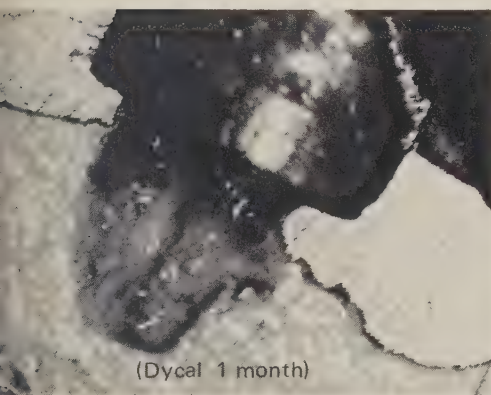
Fig 1 Dycal under amalgam restoration with the tooth exposed to water for three months at 37°C. Marginal softening of the base is evident. x25.

Fig 2 Dycal, Tenacin and Durelon bases under amalgam restorations in extracted teeth exposed to water at 37°C. First row after one month, second row after three months, third row after six months. x25.

Dycal

Tenacin

Durelon





| Material | Time in media at 37°C | Surface of the base under amalgam |                                         |
|----------|-----------------------|-----------------------------------|-----------------------------------------|
|          |                       | Unexposed to media                | Exposed to media                        |
| Dycal    | 1 week                | Firm                              | Soft surface layer                      |
|          | 1 month               | Firm                              | Softened half way to cavity floor       |
|          | 3 months              | Firm marginal softening           | Softened to cavity floor                |
|          | 6 months              | Firm marginal softening           | Softened to cavity floor, material lost |
| Tenacin  | 1 month               | Hard                              | Thin soft layer                         |
|          | 3 months              | Hard                              | Thin soft layer                         |
|          | 6 months              | Hard                              | Thin soft layer                         |
| Durelon  | 1 month               | Hard                              | Thin soft layer                         |
|          | 3 months              | Hard                              | Thin soft layer                         |
|          | 6 months              | Hard                              | Thin soft layer                         |

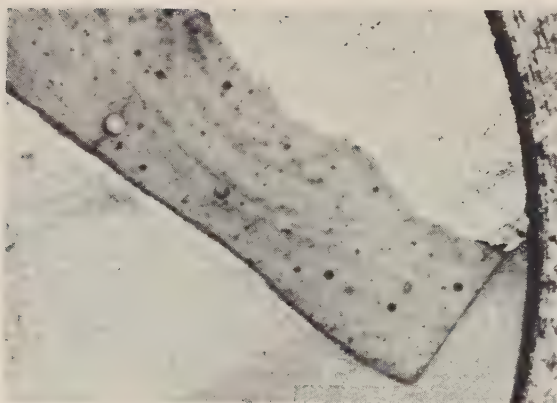
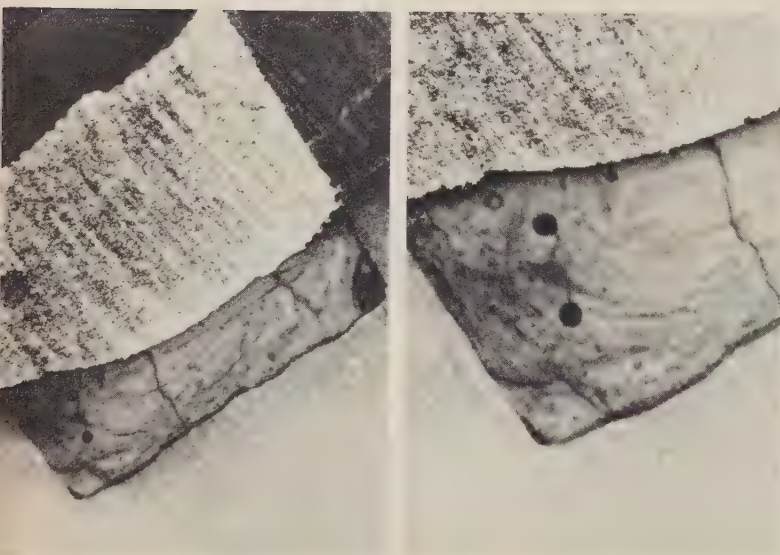


Fig 3 Dycal under amalgam restoration showing porosity and associated fracture line. x25.

Fig 4 Dycal under amalgam restoration showing fracture lines in the material. Left: x25. Right: x50.



was evaluated for hardness and disintegration. This was shown by penetration of an explorer and removal of surface material and also by changes observed microscopically in the base.

Regardless of the thickness of the base, there appeared to be no difference in the amount of disintegration shown by Tenacin and Durelon cements. The citric acid solution seemed to produce more disintegration than distilled water.

For Dycal samples the disintegration permeated the base and was very evident with the thicker layer of material. Citric acid solution and distilled water appeared to produce approximately equal disintegration of the Dycal layer.

The evaluation of the surface hardness of the bases under amalgam, using an explorer, and microscopic observation of their disintegration are recorded in Table 7.

Under sealed amalgam, Dycal remained firm with no detectable softening. However, after three months the base softened at the cavity margins (Fig 1). Where Dycal was exposed to the solutions through the restoration, the disintegration increased with time (Fig 2). After three months' exposure there was complete disintegration of the base and loss of material could be seen at six months.

Both Durelon and Tenacin bases under sealed amalgam remained hard for six months with no detectable softening either in the bulk of the material or marginally. When exposed to solutions through the restoration, both materials showed some surface disintegration, but even after six months the bulk of the base material was hard. The exposed surface of Tenacin appeared to be more damaged than Durelon at each time interval.

Using Dycal as a base under amalgam, several samples had visible fracture lines. Although at times associated with porosity in the material (Fig 3), they were observed in non-porous material (Fig 4). No fractures were seen in bases of Tenacin or Durelon.

## Discussion

Some explanation has been offered for the loss of cavity bases under amalgam restorations. Phillips et al<sup>2</sup> suggested that calcium hydroxide bases become soft



when using a water coolant in the removal of amalgam from a cavity preparation. In our study there appeared to be little difference in the bases under amalgam regardless of whether teeth were sectioned dry or cut using water as a lubricant. However, this does not explain the disintegrated material found under the restorations in extracted teeth.

The two main factors which appear to favour failure of a calcium hydroxide base under amalgam restorations are its solubility and poor strength.

Despite the results of a study indicating the minimal strength requirement for a cavity base,<sup>3</sup> the early tensile and compressive strength values of calcium hydroxide bases are significantly lower than those of zinc phosphate and zinc polycarboxylate cements. None of the samples showed gross displacement of the base from amalgam condensation, but fracture lines were observed in a number of the calcium hydroxide bases under amalgam. Values of diametral tensile strength for calcium hydroxide determined at one hour lie between those suggested for minimal strength for a cavity base, 100-170 psi.<sup>3</sup> More fracture lines were noted in the thick layers of base. This suggests that, while the surface of the base may have set sufficiently to resist forces applied in condensing amalgam, the interior could still be weak and fracture under the load. Thinner layers of a base may reduce the possibility of fracture. However, the main reason for deterioration is that calcium hydroxide is very soluble and rapidly deteriorates when exposed to aqueous solutions, whether the exposure is gross or marginal. This is in marked contrast to zinc phosphate and zinc polycarboxylate cements which show only slight surface deterioration after long periods of contact with aqueous solutions.

## Conclusions

Observation of three base materials under amalgam restorations shows that calcium hydroxide had lower strength and greater solubility in aqueous solutions than either zinc phosphate or zinc polycarboxylate cements. Caution should be exercised in its use and in the amount of material placed under a restoration. The use of a cavity varnish is indicated to reduce marginal leakage and help prevent moisture contamination of calcium hydroxide bases with the subsequent deterioration of the material under the restoration. Zinc phosphate and zinc polycarboxylate cements show less surface deterioration than calcium hydroxide when exposed to an aqueous environment.

This paper was presented at the 7th Biennial Canadian Conference on Dental Research and Education, Geneva Park, Ont, June 12-14, 1972.

Doctor Gourley is assistant professor of dental materials science, Faculty of Dentistry, Dalhousie University, Halifax. Mr. Rose was his assistant during the summer of 1971 and held a Medical Research Council of Canada scholarship in 1971.

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## Page Éditoriale

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En conséquence, le même rapport, citant la chartre de santé proposé comme un objectif de la politique nationale du Canada reconnaît aussi "la nécessité de maintenir et de développer davantage l'oeuvre indispensable des organismes privés dans le domaine de la santé."

Le rapport de la Commission d'enquête sur la santé et le bien-être social (Castonguay, 1967), au chapitre consacré à l'évolution des systèmes de sécurité sociale reconnaît que les formules traditionnelles de la charité et de la philanthropie privées ne suffisent plus aujourd'hui à satisfaire aux exigences, mais que "toutes deux doivent cependant être maintenues dans une société dotée d'un système complet de sécurité sociale".

Il nous apparaît logique, sur le continent où l'on trouve les états qui se réclament des plus hauts principes de la démocratie, que l'on reconnaisse la volonté et la participation des individus et des groupements comme l'un des droits fondamentaux de la société.

Comme l'exprime bien Jean Fourastié: "On n'améliore pas le sort des hommes sans l'action des hommes; on n'améliore pas le niveau de vie des masses sans les masses. La condition essentielle pour qu'une Nation progresse rapidement est que tous ses membres aient une idée claire de ce qui fait le progrès."

Dans un article subséquent nous appliquerons ces principes à la situation de la santé dentaire au pays.



## Medico-legal aspects of local anaesthesia

Lynda Hutchison, BSc  
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*The administration of a local anaesthetic probably more than any other dental service places the dentist in a position where litigation may result from negligent actions. He minimizes this hazard by observing the following principles of jurisprudence: (1) anticipating the results that a reasonable and prudent dentist would anticipate; (2) ascertaining significant health information before he administers a local anaesthetic to his patient; (3) personal familiarity with the pharmacological actions of the agents he uses; and (4) remembering that he is legally responsible for negligent acts of any persons to whom he delegates duties.*

*De tous les services dentaires, l'administration d'une anesthésie locale présente pour le dentiste le plus de risque de constituer éventuellement matière à litige résultant de la négligence professionnelle. L'observation des principes suivants de jurisprudence lui permettront de réduire ce risque: (1) prévoir les résultats que tout dentiste prudent est susceptible d'anticiper; (2) contrôler les renseignements concernant les caractéristiques essentielles de la santé du patient avant de lui administrer une anesthésie locale; (3) être familier avec les effets pharmacologiques des agents qu'il utilise et (4) garder en mémoire qu'il est légalement responsable de tout acte de négligence professionnelle au détriment de toute personne à laquelle il dispense des soins.*

A sound knowledge of the law as it relates to the dental profession is of great importance to every practising dentist. Many principles of dental jurisprudence may be directly applied to the administration of a local anaesthetic solution. Consequently, a dentist must be aware of the legal ramifications of this aspect of his practice.

According to Sarner,<sup>1</sup> four cardinal principles of dental jurisprudence are directly applicable to the administration of an anaesthetic:

1. The dentist does not evade responsibility by delegating this function as he is legally responsible for the negligent acts of [his agents].

2. Although the effects of anaesthetics are not always predictable, the dentist is legally required to anticipate those results that a reasonable and prudent dentist would anticipate. He must take the precautions which the reasonable dentist would take.

3. The dentist under some circumstances has a duty to take the case history of a patient before administering an anaesthetic.

4. It is incumbent upon the dentist to read the labels or brochures accompanying an anaesthetic, especially one with which he has not had previous experience.

The law concerning dental procedures has two fundamental subdivisions — intentional torts and negligence. The number of lawsuits arising from negligence on the part of the dentist greatly exceeds the number based upon an intentional tort.

### Technical assault

One long established doctrine of tort law, and more specifically of the intentional tort branch thereof, is technical assault or, more properly, technical battery. Lawsuits concerning technical assault arise when legal consent has not been obtained from the patient. Although the mere action of sitting in a dental chair is a form of implied consent, the implication does not ex-



tend to such procedures as the administration of a local anaesthetic. For a consent to be valid, it must be "informed consent," that is, the patient must be made aware of the proposed treatment and all relevant facts concerning that treatment. Moreover, the consent must be related to a particular procedure and becomes invalid if the patient agrees to allow the dentist to "do anything which is necessary." However, there are precedents which establish that a patient, under some circumstances, may be presumed to have assented to certain limited operations where he has merely requested that the dentist relieve the affliction causing him pain.<sup>1</sup> Finally, the patient must possess the legal capacity to give the consent; a minor, a mental incompetent or a person under general anaesthesia or sedation is legally incapable of giving an effective consent.

Under the doctrine of technical assault, liability is imposed upon the dentist for harm which the patient suffers as a direct result of his treatment. Furthermore, even though the patient's condition is in fact ameliorated, he can successfully maintain an action and will be entitled to an award of minimal damages. In cases such as these, no question of foresight arises. A dentist could theoretically be held responsible for such relatively minor and transient complications as muscle trismus, paresis and haematoma caused by the injection of a local anaesthetic solution.

## Negligence

Negligence may be defined as "the omission to do something which a reasonable man, guided by those considerations which ordinarily regulate human affairs, would do, or the doing of something which a reasonable and prudent man would not do."<sup>2</sup>

According to Fleming,<sup>3</sup> "negligence is conduct falling below the standard established for the protection of others against unreasonable risk of harm. This standard of conduct is ordinarily measured by what the reasonable man of ordinary prudence would do in the circumstances." However, a person who possesses "special competence which is not part of the ordinary equipment of the reasonable man, but the result of aptitude developed by special training and experience" is held to a higher standard. Accordingly, a dentist is judged "in accordance with the standards of the reasonably competent practitioners at the time, though he need not be as skilful as the most eminent member" of his profession. Thus, negligence, and more specifically malpractice (a branch of negligence which is applicable to the professional man), is basically a breach of the "duty of care" which is expected of the dentist. One must have regard to the special group to which the practitioner belongs in judging average competence. Hence, the standard of care required of an oral surgeon practising in a large metropolitan area will be considerably higher than that required of a general practitioner in a rural area.

## Legal liability

When an action is commenced, the burden of proving the legal liability of the defendant-dentist rests upon the plaintiff-patient. A standard of care must be

established and then it must be proved on a balance of probabilities that the dentist failed to conform to that standard. Unfavourable results do not in themselves mean that the dentist has been negligent. For example, the mere fact that a needle breaks, and a portion of it becomes lodged in the soft tissue of a patient's jaw does not necessarily give rise to an action based upon the negligence of the dentist because the breakage could result from negligence of the manufacturer in supplying a defective needle, or from the negligence of the patient in diverting his head at the crucial instant.

When performing surgery, the dentist is responsible for the negligent acts of his agents. In one such case, a dentist was found to be negligent in accepting and using a defective needle which was handed to him by a hospital attendant.<sup>4</sup> In another case involving a broken hypodermic needle, the dentist was found to be negligent because he failed to inform the patient of the presence of pieces of the needle which he left embedded in the muscles of her jaw.<sup>5</sup> Thus it may be concluded from the foregoing examples that the breaking of a needle is not *prima facie* negligence—it is the failure to realize the fact of breakage or convey the knowledge of this fact to the patient that constitutes a negligent act.

Injuries which can be proved to be the direct result of a dentist's failure to sterilize needles and syringes constitute proof of malpractice. According to the concept of duty of care, it is an accepted fact that the "reasonable dentist" would sterilize his instruments before proceeding with the treatment. The doctrine *res ipsa loquitur* has been applied under such circumstances.

The concept of *res ipsa loquitur*—"the thing speaks for itself"—may be applied when there is a presumption of negligence on the part of the dentist. It is applicable only when an injury results from the use of an instrument which is under the exclusive control of the dentist; the injury would not normally occur unless he was negligent. This doctrine cannot be applied to death following the administration of an anaesthetic nor to allergic reaction to medication.

Many illnesses and drugs have a profound effect on the action and subsequent metabolism of local anaesthetic solutions and the vasoconstrictors which they contain. It is therefore the duty of the dental practitioner to seek out pertinent information before he injects a local anaesthetic. Appropriate questions should include:

1. Have you ever had an unusual reaction to a dental anaesthetic?
2. Are you taking any medicines now?
3. Have you ever had any liver disease, kidney disease or high blood pressure?
4. Do you have a tendency to faint?

If answered affirmatively, these questions should be discussed with the patient and the appropriate changes made in the quantity or composition of local anaesthetic and vasoconstrictor to be used in subsequent procedures. Toxic effects will thereby be minimized as will the possibility of litigation.

A relatively recent development in the law of torts which has occurred in some jurisdictions in the United States is the concept of "strict liability." This theory permits recovery by an injured plaintiff without requiring proof of negligence. It has been applied primarily in cases involving the liability of manufacturers for



injuries occasioned by the use of their products, but innovative lawyers are currently attempting to extend its applicability. However, in a recent case<sup>6</sup> it was decided that the dentist was not liable to the patient under the rule of "strict liability" after a needle broke off in the patient's jaw during routine administration of a local anaesthetic. The dentist believed that there must have been some sort of defect in the needle. The court, in this case, decided that the dentist neither created the defect nor possessed any better capacity to discover or correct it than the patient; he did not put the needle "in the stream of commerce" nor promote its purchase.

A dentist cannot be held responsible for latent defects in the instruments which he uses. Therefore, even if Canadian courts accept the theory of strict liability as a viable tort doctrine, it may be persuasively argued to be inapplicable to malpractice suits.

## Conclusion

Most lawsuits concerning injuries following the injection of local anaesthetics are based on one or more of the following allegations:<sup>4</sup>

1. Secondary infection resulting from the use of an unsterile needle or syringe;

2. Injuries sustained from a falling or slipping instrument;

3. Injuries or death resulting from anaesthesia or the injection of injurious fluid mistaken for an anaesthetic agent;

4. Fracture of a hypodermic needle with or without the failure to remove it;

5. Improper or no consent by the patient for part or all of the dental treatment performed;

6. Failure to inform the patient of an injury, accident or mishap that occurred during treatment.

A dentist who administers local anaesthetics can minimize the possibility of litigation by obtaining written or "informed" verbal consent from his patients and by exercising reasonable care in accordance with the standards of his reasonably competent confrères.

Miss Hutchison is a third year student at the Faculty of Dentistry, University of Western Ontario, London, Ont.

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## The Tatamagouche Project

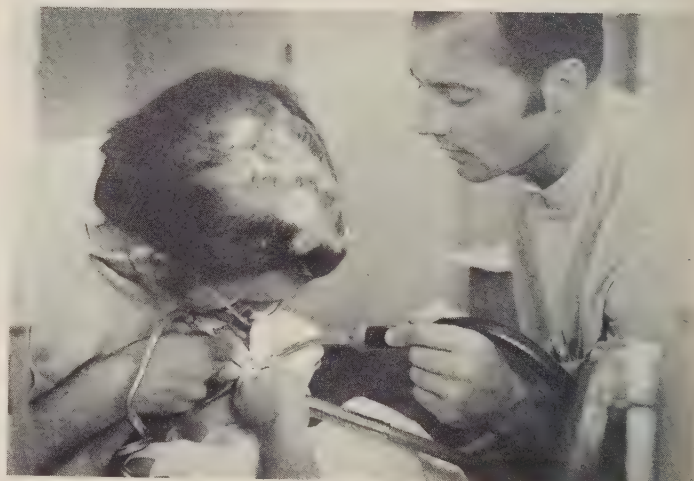
(Continued from page 405)

several weeks. The equipment, although far from ideal, was adapted to provide a semi-satisfactory "sit-down" situation. With the hygienists working side by side with the dental students and available to assist in the examination procedures, close cooperation was evident at all times.

While it has been difficult to assess the impact of the program on the students' attitudes, social responsiveness or associated sociological factors, all gained valuable practical experience. Treatment records show that over the 10 week period each senior student placed an average of 350 restorations, performed a half dozen vital pulpotomies and extracted 40 teeth. These figures provide some measure of the paedodontic experience that may be obtained from a program of this nature. Each of the hygiene students performed about 135 prophylaxes, topical fluoride applications and individual oral hygiene instructions, and gained experience in exposing and processing radiographs.

For the junior student, the experience provided training and practice in the role of a dental assistant in the four-handed team. While becoming skilled in the preparation of materials and in instrument selection, helping with rubber dam placement and patient management, he was able to observe closely the various technical procedures. He was able to benefit, along with his operator, from case discussion with the staff supervisor and from his advice, guidance, criticism or comments. His summer experience will be of great benefit in his forthcoming clinical years.

The recognition of the benefit to the community and the utilization of dental and dental hygiene students in



Rubber dam and washed field techniques are used routinely. Above, L. Shore (right) is assisted by J. R. Sandelli.

a project such as this have proven worthy of emphasis. Results obtained to date suggest that teams of students such as those employed in the Tatamagouche project may be expected to conduct an effective incremental child care program with a beginning four-to-eight year old population of 300 children. While it is difficult to assign specific periods to such a program, it would seem that an initial care period of five to six months followed by an annual three month period for maintenance care plus initial care for a new increment of four year olds may be sufficient to provide an adequate program for such a group.

Doctor Kearney is professor of community dentistry, and Doctor McLean is dean of the Faculty of Dentistry, Dalhousie University, Halifax.



### Management of a broken hypodermic needle: Report of a case

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J. B. Curran, BDS  
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Winnipeg

The occurrence of broken hypodermic needles in dental practice is becoming extremely uncommon. This is due not only to the advent of disposable needles but also to the considerable improvement in the type of steel used in their manufacture. Before the introduction of disposable needles this was a much more frequent occurrence, as indicated in Blum's<sup>1</sup> paper, published in 1924, in which he reported 65 cases in a 10 year period. Recent reports<sup>2,3</sup> show a reduction in the number of cases.

The following case illustrates the management of a broken, disposable type hypodermic needle and suggests some guidelines for minimizing this unfortunate complication.

#### Report of case

A five year old boy was referred to the oral surgery department of the University of Manitoba by his dentist who reported that he had broken a short 27 gauge needle while administering an inferior dental nerve block that afternoon. It had been the child's first visit to the dentist and during the injection he had jumped violently, fracturing the needle at the hub. No attempt was made to remove the needle at that time since the broken end was not visible.

On examination, the child appeared healthy and in no great distress. His medical history and examination did not elicit any significant findings.

On intra-oral examination, a small puncture wound was visible in the left retromolar region and, apart from carious left deciduous molars (the reason for the dental visit), no other abnormalities were found.

Panoramic and posterior-anterior (PA) radiographs of his mandible demonstrated the needle lying with its point close to the sigmoid notch (Fig 1).

It was decided to attempt surgical removal of the needle and the child was admitted to the Children's Hospital of Winnipeg for surgery that same evening.

*Operative report* — Under endotracheal anaesthesia the left retromolar area was thoroughly examined but the needle was not palpable.

An incision was therefore made from the retromolar fossa vertically upward along the lingual aspect of the ramus.

The periosteum was then raised as far superiorly as the sigmoid notch. It was hoped that the point of the needle had perforated the periosteum and hence would be visible, a technique recommended by Killey et al.<sup>4</sup> However, this manoeuvre was unsuccessful.

Two locating needles were then inserted at approximately right angles to the broken needle fragment, and portable anterior, posterior and lateral skull radiographs were taken on the operating table (Fig 2). Careful layer by layer dissection of the medial pterygoid muscle, at right angles to the broken needle, was then commenced using the localizing needles and radiographs as guides. The procedure was also greatly facilitated at this stage by transillumination of the tissues with a fibre optic light probe. The needle was found eventually in the substance of the medial pterygoid muscle, but some distance away from the original puncture site. It was grasped with mosquito forceps and removed with no difficulty. The incision was closed with four 0 catgut sutures and on drains were inserted.

Postoperatively considerable swelling and trismus were present but the patient was fit for discharge on the third postoperative day. The swelling subsided over





Fig 1 Panoramic radiograph showing broken needle lying close to the sigmoid notch.

the next week, but normal jaw opening was not present until three weeks postoperatively.

## Discussion

There seem to be two basic schools of thought on whether a broken needle should be removed. Some authors, such as Brown and Meerkotter<sup>5</sup> and Cawson,<sup>6</sup> feel that removal is not always necessary unless the patient develops symptoms. Others, such as Fraser-Moodie<sup>7</sup> and Amies,<sup>8</sup> suggest definite removal and base their reasons, among other things, on the possibility of the needle migrating in the tissues and perforating a vital structure.

A further argument in favour of removal is the possible psychological trauma to the patient that may result from the knowledge that a needle has been retained "somewhere in the throat." Difficulty could also be envisaged for the dentist or physician since, if symptoms did arise in that area at a later date, it would be extremely difficult to prove or convince the patient that the retained needle was not responsible. This aspect would also have obvious medico-legal consequences.

The most important aspect of the surgical technique is accurate localization of the needle. Although numerous methods have been described, all have certain drawbacks. The most frequently described methods are those where localizing needles are inserted into the tissue in as close proximity to the broken needle as possible and radiographs are taken in different planes.<sup>3, 9</sup> This method was used in the present case. Electronic locators have also been used<sup>10</sup> but their main drawback is that they are only accurate to approximately 0.5 cm away from the needle. It is well known that it is this last 0.5 cm which presents the problem surgically.

Magnets have also been employed but, unfortunately, the modern hypodermic needle is non-magnetic. Crouse<sup>2</sup> employed a modern metal detector but found no response on both ferrous and non-ferrous settings of the instrument and thus found it of no value.

One of the greatest advances, however, as an aid in the surgical technique has been the introduction of the fibre optic light probe. This can be held close to the tissue being explored for transillumination and in the present case was almost equal in importance to the needle localization technique described.

Regarding the prevention of this complication, several important aspects must be considered. Is the use of a short needle for an inferior dental block, even in a child, safe practice? Certainly, if breakage occurs with a long needle, and this always seems to occur at the hub, then more of the needle will be protruding from the tissue and thus can easily be removed with mosquito or artery forceps. However, if a short needle is used, it is absolutely essential not to insert the needle into the tissue up to the hub.

A further consideration is the use of adequate pre-operative sedation in the nervous patient, thereby minimizing the possibility of his sudden movement during the injection. If this had been carried out in the case described, the accident might not have happened.

Finally, despite the rarity of this complication and the improvement in needles, there is no room for complacency and a meticulous injection technique is imperative.

## Summary

The management of a broken short hypodermic needle following an inferior dental nerve block in a five year old child is described. Immediate surgical removal of the needle is advocated owing to its possible



migration among vital structures and the psychological and medico-legal implications which could arise for the patient and the dentist.

The various techniques used in localization are discussed.

The use of short needles for inferior dental nerve blocks is seriously questioned and the importance of sedation in the anxious patient together with a careful injection technique in all patients are emphasized.

The authors express appreciation to the photographic department of the Faculty of Dentistry, University of Manitoba, for preparation of the illustrations.

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Fig 2 Portable lateral jaw radiograph taken at operation with localizing needles in place.

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## Editorials

(Continued from page 386)

The act also places strict limitations on advertising practices. Dental mechanics are not permitted to publicize or advertise the cost or nature of their services, except to say the services are those of a licensed dental mechanic or of a laboratory operated by a licensed dental mechanic. Newspaper advertising is restricted to three insertions of a business card announcing either change in location and business personnel or the opening or closing of a practice. Telephone directory advertising is limited to an ordinary listing in the white and yellow pages. Display advertisements are taboo.

As of November 1 provisional licences will be issued to residents who have lived in the province for the past year and who have practised as dental mechanics for at least three consecutive years of which the third year was in Manitoba. Out-of-province residents must have at least five consecutive years of practice behind them and an academic standard equivalent to Grade 11. All applicants must apply

for provisional licences within three months of the effective date of the act.

Dental mechanics will be licensed by the province with an annual practising fee of \$100 and government inspectors will be appointed to assist in the enforcement and administration of the provisions of the act. Regular licences will be issued to applicants who hold provisional licences if they are residents of the province and either pass prescribed tests and examinations or successfully complete an approved training and apprenticeship program.

Complaints of misconduct or incompetence will be investigated by a government inspector reporting to the provincial director of dental services who will then recommend a course of action to the Minister of Health and Social Development. Minimum penalties for offences under the act are \$200 for a first offence, \$500 for a second, and suspension of licence for 60 days to six months for a third or subsequent offence.



## The use of emotional support in dentistry

Frederic Vosburg, DDS  
Montreal

Dentists must cope with clinical situations in which various psychological factors play a significant role. They are required to:

1. Influence the psychic adaptability of the patient to removable dentures.
2. Treat oral disorders with a psychogenic element.
3. Modify the obstructive behaviour of "difficult" patients, as may occur in some women undergoing menopause or uncooperative children.
4. Raise the patient's pain reaction threshold.
5. Reduce gagging.
6. Recognize the symptoms of emotionally disturbed patients relevant to oral diagnosis and treatment.
7. Prepare the patient psychologically for general anaesthesia and nitrous oxide analgesia.

Dentists rely on their experience and intuition to meet these requirements. This primarily subjective approach may be reinforced and rendered more effective by a conscious, deliberate utilization of the supportive psychotherapeutic techniques of suggestion, reassurance, explanation and ventilation.

**Suggestion** — This technique is used to implant an idea or belief in the patient by word or act which is accepted uncritically and which initiates a desired response. Its success is based on the patient's innate receptiveness to suggestions and the fact that he tends to believe as valid the statements of persons to whom he attributes omniscience.<sup>1</sup> The prescribing of placebo is a form of suggestion.

**Reassurance** — This is an interpersonal technique used to allay anxiety and fear. The dentist assumes a somewhat authoritarian role similar to that of a parent to a child.<sup>2</sup> His assurance that all is well calms the patient.

**Explanation** — As a general rule it is desirable to explain to the patient in simple language the procedures to which he will be subjected. The purpose is to make clear what was unknown or only dimly understood and dispel fear of the unknown.<sup>3</sup>

**Ventilation** — Taking a few minutes of an appointment to listen quietly to the patient helps him discharge anxiety and tension and lets him know that the dentist is concerned about him. Even if the patient knows that his fears are irrational, verbalizing them and seeing that the dentist is not disturbed or upset can have a beneficial effect.<sup>4</sup>

Effective use of these techniques presupposes a harmonious relationship between dentist and patient based on confidence and trust. Empathy and insight help promote this rapport. Empathy is an objective awareness of the patient's feelings and emotions. Derived in part from a relevant study of psychodynamics,<sup>5</sup> empathy amplifies good relations as it precludes a condemnatory judgement of the patient's behaviour. Insight aids the dentist to understand his own behaviour and thus cope with his personal psychological difficulties which may impede his competence to relate to his patients.

The following composite case histories illustrate the use of supportive techniques in the previously enumerated clinical situations.

### Reports of cases

Mrs. A. P. went to a renowned prosthodontist with a Vitallium partial lower denture that she was unable to wear. She displayed little faith in the dentist who had constructed it. A thorough examination revealed that the denture was biomechanically adequate. It was remounted on an adjustable articulator and minor occlusal adjustments were made. Throughout these procedures the prosthodontist's decisive approach projected an air of self-confidence without arrogance. He returned the denture to the patient after an interval of



one week with the firm assurance that it was now acceptable. As a result of suggestion enhanced by rapport the patient was able to wear the denture with comfort.

Mr. H. N. suffered from myofacial pain dysfunction syndrome in which psychic stress was a key aetiological factor. After explaining the mechanism of the disorder, the dentist reassured the patient that it was not a serious condition and that his pain and related symptoms would subside in due course. He continued to furnish emotional support until the patient's symptoms gradually disappeared.

Mrs. Y. L. was argumentative with the dentist's receptionist. Attributing her dental ills to previous dentists, she resorted to child-like behaviour in the dental chair, demanded unrealistic aesthetic results and was generally troublesome. The dentist recognized that she was actually displaying defensive behaviour to mask anxiety induced by the dental environment. Using positive reassurance and quiet explanations, he refrained from expressing any judgement of her behaviour. This permitted him to provide necessary dental care with minimum stress to the patient, himself and his personnel.

Mr. G. H. approached the removal of a lower impacted third molar in a state of near panic. He had a chronically low pain reaction threshold<sup>6</sup> established by a lifetime of environmental factors. This was accentuated by the conditioning influence of previous unpleasant experiences with oral surgery and by his prevailing state of mind which was tempered by recent economic reversals. The dentist listened to the patient without interruption, answered all questions, regarded him as a unique individual and maintained an air of imperturbability. These measures modified the patient's anxiety and raised his pain reaction threshold, facilitating treatment.

A 35 year old male presented with complete dentures that he could not tolerate because of severe gagging. Examination disclosed that psychic rather than tactile stimuli were responsible for this condition. A psychiatrist who treated the patient with hypnosis succeeded in controlling this pathological reflex. The patient was able to tolerate the dentures for periods of time as a result of this method of positive suggestion.

Miss S.O., aged 49, had a history of psychiatric treatment for anxiety reaction. Manifesting exagger-

ated responses to oral disorders and their treatment, she confused accurate diagnoses by magnifying subjective symptoms and displayed an excessive fear of cancer. She also delayed restorative treatment by continuous interruptive interrogations. Recognizing these manifestations as a reflection of her chronic anxiety,<sup>7</sup> the dentist conveyed to her a feeling of acceptance, warmth and genuine interest. He liberally supplied her with reassurance.

Mr. H. J., aged 25, presented with a badly neglected dentition. He admitted to a morbid fear of dental treatment and requested the use of a general anaesthetic. To reduce anxiety and thus diminish the quantity of anaesthetic required, the dentist proceeded to gain the patient's confidence by conducting a thorough, methodical examination with an unruffled, reassuring manner. No attempt was made to dissuade him from the use of a general anaesthetic. The dentist's interpersonal approach combined with suitable premedication provided adequate pre-anaesthetic preparation.

## Summary

The psychotherapeutic supportive techniques of suggestion, reassurance, explanation and ventilation can be readily adapted to dental needs. They aid the dentist in coping with psychic factors which influence patients' attitudes toward dental care.

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# Reviews/Analyse

Chapters 12 and 13 cope with the treatment of vital pulp and the principles of root canal therapy. Many general practitioners will find this a welcome addition as root canal therapy is often required to preserve a functioning tooth. The classic method for the lateral condensation technique for filling canals is presented.

The author has chosen to omit a chapter on compacted gold restorations as there are excellent texts available on the subject; and, in his opinion, foil is being used with "increased rarity" in practice.

E. R. Ambrose

## Book Reviews

### A Manual of Operative Dentistry

H. M. Pickard, Ed 3. Toronto, Oxford University Press, 1970. 183 p. Illus. \$5.75

The purpose of this book, as stated in the preface, is to describe the performance of the simpler procedures of operative dentistry "and relate these to underlying principles." It is not intended to replace standard operative texts, but rather to supplement existing literature.

The text is easily followed and practical diagrams and photographs are given.

The chapter on "Principles of Cavity Preparation" presents some clear concepts on enamel margins and cavity wall direction. However, no mention is made of recording centric stops to guide cutting procedures when considering the location of the cavo-surface outline form on the occlusal surfaces of posterior teeth. Also, the guide suggested for the buccolingual width of fissure preparations (Fig 33) between cusp heights is wider than generally considered necessary on this continent.

I strongly endorse the author's comments on using hand instruments rather than carbide burs to cleave unsupported enamel, and avoiding excessive removal of tooth structure along cuspal inclines involved by large carious lesions (chapter 6).

Chapter 8, on semi-permanent aesthetic materials, gives a practical review of Class III and V problems and their restoration. Composites are mentioned briefly in the last paragraph.

Chapters 9 and 10 deal with the problems of direct gold castings and describe a practical approach to the direct technique.

Chapter 11 reviews the classic indirect technique but lacks some of the variations in outline form, slice designs and other refinements currently in use in North America. There are some practical comments on fitting castings.

### Clinical Practice of the Dental Hygienist

Esther M. Wilkins, Ed 3. Philadelphia, Lea & Febiger, 1971. (Available from The Macmillan Company of Canada Limited, Toronto) 529 p. Illus. \$15.50

This edition of a book which has often been called the bible of dental hygiene is carefully documented and well written. The author's background as a dentist, hygienist, director of a school of dental hygiene and member of a periodontology department is reflected in the well-rounded picture of the dental hygienist's clinical practice.

The book carefully progresses from the introduction of the novice to advanced techniques. Each subject area, such as polishing techniques and materials, is usually dealt with in only one location. The reader is referred to other chapters where related material, perhaps prerequisite to the subject under discussion, is presented. This system, although excellent for graduate or senior students, tends to result in too much material for the beginner. Consequently, careful selection of reading assignments may be required.

Although the choice of words and phraseology result in well expressed concepts, the sophistication tends to make reading and instant comprehension difficult at times, particularly for persons whose first language is not English. This is not a book which can be read quickly; it requires concentration and time and, for the student, sometimes additional explanation by his instructor. More use could have been made of diagrams and illustrations to clarify descriptions which rely too heavily on words; however, the few that are included are good.

Coverage of the subject appears to be relatively comprehensive and up-to-date. The popular plaque control program as a primary prevention technique for periodontal disease is fully covered. Good reference is made to the basic principles of learning and the scope, as well as the limitations, of research on

this subject are explained. The author makes careful statements accompanied by footnotes on documented research. Because of this quality, the reading of the revised section on patient instruction is recommended to all members of the dental health team.

There are some minor omissions in this book. The removal of overhanging margins of amalgam restorations is not dealt with, although the polishing of these restorations is described. Four-handed clinical dental hygiene receives only cursory attention. The administration of local anaesthetics, a new clinical responsibility for dental hygienists in some parts of North America, is not included. The expanding role of the hygienist in the area of secondary prevention of periodontal disease, such as root planing and gingival curettage, is presented, but no coverage is given to caries control.

Research results are stated briefly with long lists of references at the end of each chapter. Additional readings are also listed. These lists have been expanded in this edition to help the instructor assign supplementary readings for the student, but they are also of value to all readers. Reference reading is frequently required to fully appreciate the brief statements based upon the research results. However, this has the advantage of encouraging students and graduates to wider reading and keeps the book at an acceptable length. The author has consciously avoided making regional references to the scope of the hygienist's duties, thereby making her descriptions applicable to a wide range of circumstances both in Canada and the United States.

As well as the initially stated uses, earlier editions have been used for continuing education and refresher courses. Dentists have found previous editions useful background reading in preparation for employing dental hygienists. Students have used various chapters as an introduction to clinical techniques. Student and practising dental assistants have found certain chapters of value, and with their expanding role in some provinces in Canada this book could well become a standard text for clinical procedures.

The cost of this textbook is moderate in comparison to many others of equal length. It is recommended as one of the best on the subject of clinical dental hygiene.

Sharon B. French

### Dental Morphology and Evolution

A. A. Dahlberg, ed. Chicago & London, University of Chicago Press, 1971. 350 p. Illus. \$18.50

In September 1968, the Second International Symposium on Dental Morphology



gy was held at Royal Holloway College in Surrey, England, and this book represents the rather delayed publication of 17 of the papers presented at that symposium. The symposium was interdisciplinary in nature, attended by anatomists, embryologists, anthropologists and odontologists.

As with most symposium volumes, this book is a chimera, in much the same manner as the Greek mythological fire-breathing monster of that name with a lion's head, a goat's body and a serpent's tail. The book's three parts, however, consist of the ontogeny (embryology), phylogeny (evolution) and morphology of mammalian teeth. The 19 authors represented in this collection of articles are among the foremost in their respective fields of endeavour, and the generally high standard of presentation reflects this fact.

In the section on ontogeny, P. M. Butler discusses some important advances in observing the growth of human tooth germs, while E. J. Kollar's and G. R. Baird's interesting experimental studies on tissue interactions in developing mouse tooth germs complement Butler's observations. W. A. Miller's conclusion in his paper on "Early Dental Development in Mice" that ectoderm determines tooth type somewhat refutes Kollar's and Baird's belief that "it is the mesoderm that plays decisive roles in the initiation, maintenance and structural organization of the tooth germ." C. H. Tonge elaborates upon this theme in his discussion of the role of mesenchyme in tooth development. It is unfortunate that Shirley Glasstone's contribution to the symposium, bearing in mind her extensive experience in this field, is not included in this volume. The section on ontogeny closes with a brief chapter by M. V. Stack on the relative rates of weight gain in human deciduous teeth.

The section on phylogeny encompasses a wide scope, ranging from D. F. Poole's well illustrated chapter on the phylogeny of calcified tissues, through Alan Boyde's excellent scanning electron microscope studies of a variety of mammalian teeth, to an extensive discussion of palaeo-odontology. This last topic is covered in four papers, namely "Basic Crown Patterns and Cusp Homologies of Mammalian Teeth" by Philip Hershkovitz; "The Trinity (Albian Age) Therians: Their Bearing on Evolution in Marsupials and Other Therians" by William Turnbull; "Mesozoic Evolution of Mammals with Tribosphenic Dentitions" by William Clemens and a review of the interrelationships of oligocene and miocene catarrhini by Elwyn Simons.

Hershkovitz's treatment of his subject, covering 55 pages, is profound, and his paper may well become a classic. He challenges many hitherto widely held concepts of the evolution of mammalian teeth with convincing evidence illustrated with intricate drawings. The chapters by Turnbull and Clemens on early mammalian dental evolution comple-

ment Hershkovitz's paper. The omission of Crompton's report on early mammalian tooth patterns detracts from the completeness of this section. The chapter by Simons advances the stages of dental evolution to that reached by the early primates, wherein he discusses the relationships of a number of specific fossil remains.

The final section on morphology covers a systematic description of dental roots by I. Kovacs. After a succinct discussion of penetrance and expressivity of dental traits by Albert Dahlberg, there are chapters on specific dental characteristics of British (D. H. Goose), Afghan Tajik (A. D. Beynon) and Megalithic Era, 2500-1000 BC (H. E. Brabant) human populations. Kovacs's article, apart from his pardonable awkward use of English, unnecessarily complicates the accepted terminology of taurodontism by substituting "prismatism" for a dental morphological phenomenon that is already confusing.

The final chapter on a cinefluorographic study of feeding in the American opossum, by Karen Hiiemae and A. W. Crompton, is slightly out of character with the subject matter of the rest of the volume and could have been omitted in favour of Crompton's other contributions to the symposium.

The author and subject indices commendably enhance the usefulness of this volume, as do the generally excellent bibliographies appended to each chapter. The book's high standard of production is somewhat spoiled by minor typographical errors and incorrect and incomplete references in some chapters, but none are serious.

The subject matter of this book will be very esoteric to the average practitioner, but would provide a challenge to those intellectually curious enough to inquire into the development and natural history of teeth. For the regrettably small coterie of odontologists, this book will be a well-nigh indispensable addition to their libraries.

G. H. Sperber

### Biologic Basis of Orthodontics

A. A. Gianelly and H. M. Goldman.  
*Philadelphia, Lea & Febiger, 1971.*  
(Available from The Macmillan  
Company of Canada Ltd) 414 p.  
Ilus. \$19.25

The first three chapters of this book provide a well written and illustrated review of recent work on the biology of cells and the periodontium. Though the information is available elsewhere (notably in Melcher and Bowen's *Biology of the Periodontium*), it is summarized in useful fashion for the orthodontist.

Chapter 4 on tooth movement forms the heart of the book, which is not un-

expected in view of the authors' particular experience. Much more thorough than similar reviews in several recent textbooks, it touches on many areas of immediate interest such as the use of orthopaedic force, soft tissue behaviour during and after tooth movement and the newer theories of hydrodynamic and piezo-electrical changes.

Surprisingly, there is very little discussion of the immediate effects of tooth movement as have been examined by Muhlemann and Picton. Also absent is consideration of palatal expansion, a subject surely relevant for a book of this nature. Another minor criticism is the failure to follow up the chapters on the cell and periodontium with comment about cellular reaction occurring during tooth movement. This remains an obscure area that is poorly studied by orthodontists. However, the authors present some refreshing new viewpoints in a field where little has changed for many years.

Chapter 5 is devoted to muscle and the temporomandibular articulation. Part 1 deals with nerves and muscles. Descriptive anatomy is given and a fairly good picture is presented of the muscular interactions necessary to bring about different jaw movements. There is an up-to-date summary of various studies on swallowing and the effects of muscle pressures on teeth. Occasionally, clinical implications are brought out, as for example: "The lower molar teeth in the mandibular arch are normally inclined to the lingual. On the other hand, the lingual forces exerted by the tongue during function and rest are far greater than the labial forces. If muscle force was the sole determinant of tooth position, one might expect a labial rather than a lingual inclination of the teeth. Thus, the equilibrium theory of tooth position should be expanded to include the forces resulting from many other factors such as . . ."

Part 2 concerning the temporomandibular articulation, though up-to-date, is not clinically oriented. The final paragraph titled "Lateral Movements" is particularly disappointing. The description of Bennett movement is completely wrong; for instance, it is impossible for the balancing side condyle to move laterally. In addition, there is a bad error in the statement "the movement of the condyle on the 'non-balancing' side is greater than the condylar movement on the working side." This, in effect, is stating that movement of the working condyle is greater than the condylar movement on the working side.

One-third of chapter 6 pertains to dental arch growth and development. The direction of mandibular growth relative to changes in the dentition is presented. Dimensional alterations in the dental arch associated with normal development are reviewed. Also discussed is the significance of three common symptoms of incipient malocclusion.

The latter third of chapter 6 dealing with facial growth and development



provides an excellent review of current theories in this field. In addition, the summary of the current status of prediction of facial growth, though pessimistic, appears to be most valid. The soft tissue considerations are the most important points for the clinician to note in this chapter. Information relative to late nose growth and the lack of correlation between lip retraction and dentition retraction deserve particular attention.

Chapter 7 concerning retention is short but realistic and includes discussion of surgical intervention on soft tissues after tooth movement. The problem of relapse is examined honestly and the chapter accurately reflects how little we know about retention.

Chapter 8 represents a somewhat unsuccessful attempt at clinical application of the preceding material. While it makes interesting reading for the uninitiated, the concepts presented are routine for the experienced orthodontist.

Despite some shortcomings, this is a timely book for orthodontists and paedodontists and graduate students in these specialties. It forms a useful complement to Horowitz and Hickson's *Orthodontic Diagnosis*.

G. A. James, R. O. Fisk,  
B. Hemrend, J. H. Hibberd,  
D. G. Woodside

## Orthodontic Theory and Technique

P. R. Begg and P. C. Kesling. Ed 2.  
Philadelphia, W. B. Saunders  
Company, 1971. 676 p. Illus. \$42.70

Some five years ago Doctor Begg introduced his first text setting forth his light wire, differential force treatment philosophy and multiband technique. He now gives us a greatly expanded second edition with more than 200 new pages of information and many new illustrations.

Those who use this method consider it an efficient approach to modern orthodontics as well as a sophisticated technique that requires a sound knowledge of the principles involved and the meticulous application of the mechanics. An examination of the new material in this text supports these observations.

The organization and presentation are similar to that of the first edition in that the number, order and titles of the chapters are the same. The first five chapters dealing with the basic philosophy remain unchanged except for some alterations to the illustrations. It is the subsequent chapters, dealing with mechanics, that have been greatly expanded to better present and illustrate the fine detail of appliance design and treatment.

Areas of particular interest to this reviewer were those chapters with the

greatest amount of new material: chapters 6, 9, 11 and 12. Chapter 6 has many new illustrations detailing refinements in appliance design. Chapter 9 concerns treatment procedures. Chapter 11 outlines the management of problems occurring during treatment. It has been reorganized as well as expanded. Chapter 12 describes treatment methods for various cases ranging from minor to major complexities.

A major shortcoming of many orthodontic texts, for students and clinicians, is the lack of detailed treatment records of a variety of cases. Not so with this text. Chapter 16 gives a fully documented history of 27 treated cases of differing malocclusions with the records collected before, during and after treatment for periods ranging up to eight years.

The original edition was a good text for the clinician and student of the light wire philosophy, but the new one is better.

R. D. Leuty

## Current Therapy in Dentistry

H. M. Goldman, H. W. Gilmore,  
R. Q. Royer and N. H. Olsen, ed.  
Vol.4 St. Louis, The C. V. Mosby  
Company, 1970. 651 p. Illus. \$31.00

This book is divided into four sections: oral medicine, restorative dentistry, oral surgery and paedodontics. The text is well illustrated with 1,087 figures and every facet of dentistry is covered. Although fairly basic concepts are followed, the authors present several new approaches to old problems.

The chapter on pharmacology gives up-to-date findings on drugs used in the treatment of cardiovascular diseases. The discussions on drug use during pregnancy and methods of anaesthesia for epileptic patients are also worthy of comment. The authors concur with Samuel Livingston of the Johns Hopkins Hospital epilepsy clinic who states that there is no contra-indication for general anaesthesia in epileptic patients.

It was interesting to read Leone's comment on skeletal fluorosis in chemical workers. After observing diminished osteoporosis in individuals residing in naturally fluoridated areas, he concluded that adult bone structure may suffer adverse effects with prolonged use of drinking water containing insufficient fluoride.

The authors recommend that mouthwashes should only be sold as pleasantly flavoured solutions without therapeutic value. Their proposal coincides with the position taken by the American Dental Association's Council on Dental Therapeutics. The council feels that medicinal agents used at home to relieve pain or other symptoms of oral

disease are contrary to the public interest because they may delay patients from seeking professional care.

Elsewhere, readers are cautioned about accepting new products for restorative dentistry; these should be thoroughly tested and approved by the Canadian or American Dental Association prior to their release.

Management of temporomandibular joint problems is covered very thoroughly and the approach is interesting. The chapters on referred pain, mild facial pain syndromes of the neck, and differentiation between masticator pain and other pain are likewise worthy of attention. The authors urge the postponement of occlusal adjustment until normal muscle function is restored and the occlusal relationship of the teeth can be properly examined.

The management of facial pain is properly assessed by being termed as a team effort. But little new has been added in the fields of premedication and paediatric dentistry.

Overall, this book covers a wide variety of topics. It is certainly one that this reviewer has enjoyed.

F. J. Phillips

## Analyse de livres

### Traitement orthopédique des traumatismes maxillo-faciaux

A. Rigault et P. Voreaux. Paris,  
Masson et Julien Prélat, 1971.  
194 p. Illustré. 62 F

Extrait de la préface de P. Cernéa:

L'importance de la prothèse maxillo-faciale se justifiait, autrefois, en temps de guerre; il n'en est plus de même, actuellement, depuis que la traumatologie a pris en pratique civile une importance de plus en plus grande à mesure que se développaient les moyens de transport et les techniques industrielles.

Dans ce premier volume, MM. Rigault et Voreaux étudient le traitement orthopédique des fractures des maxillaires et les applications de la prothèse dans le traitement des affections et l'articulation temporo-maxillaire.

Les auteurs ont fait oeuvre didactique en illustrant abondamment le texte de schémas et de radiographies, en classant les différentes formes cliniques et en faisant choix des thérapeutiques les plus sûres.

Il faut souligner cependant, que le traitement des blessés maxillo-faciaux nécessite beaucoup d'ingéniosité pour adapter les techniques traditionnelles à chaque cas particulier. Les auteurs n'ont pas manqué de donner des exem-



ples qui montrent les variantes le plus souvent adoptées.

Les fractures simples permettent rapidement un traitement ambulatoire, les fractures complexes ne peuvent être correctement traitées que dans des centres où s'associent les équipes chirurgicales et de prothèse maxillo-faciale et disposant de moyens de réanimation, de diagnostic et de traitement; le résultat fonctionnel et esthétique dépend de la bonne coordination des membres de l'équipe. Le chirurgien maxillo-facial conscient des impératifs fonctionnels, reconstitue les chevalets de la face et rétablit la continuité de toutes les structures inaccessibles au traitement orthopédique. La prothèse maxillo-faciale prend point d'appui sur les dents pour assurer la réduction des fractures des maxillaires et leur immobilisation en bonne position.

C'est ainsi qu'à l'étage inférieur, l'articulé dentaire sera conservé ainsi que le jeu articulaire temporo-maxillaire; à l'étage supérieur, les orbites seront reconstituées, les os malaires remis en place, la perméabilité nasale rétablie grâce à la chirurgie. La qualité du résultat cosmétique accompagne le rétablissement des fonctions, la chirurgie correctrice secondaire ne devrait être qu'un pis-aller.

Je félicite les auteurs de ce premier volume de prothèse maxillo-faciale, il initiera les praticiens et les étudiants aux techniques et aux indications les plus fréquentes de la prothèse maxillo-faciale. Faut-il ajouter que le traitement des blessés maxillo-faciaux implique beaucoup de patience et d'adresse et prend place bien souvent dans l'ambiance dramatique des catastrophes que les accidents de la route nous font connaître.

M. P. Tenenbaum

## Annotations

### People Look at Doctors: The Sunnybrook Health Survey

W. Harding le Riche, John Hilditch, Fred Demanuele and F. Caroline Sutherland. University of Toronto Division of Health Sciences. Toronto, Sunnybrook Hospital, 1971. 204 p. \$4.00

"Dental costs are too high, compared with premiums for medical and hospital services," according to the respondents quoted in this report of a survey of public opinion about health services. The study was carried out last year in northern Metropolitan Toronto. One thousand successful interviews were obtained from a random sample drawn

from 78,729 addresses. The mean annual family income of the respondents was \$12,125.

The persons interviewed greatly underestimated the cost of their health insurance premiums and the total costs of health services, the investigators found. A similar situation pertained to the dental field, in which respondents were willing to pay for a family in an insurance plan \$120 per year as against their own estimate of actual costs of \$204 per year.

Commenting on the opinions expressed about dental care, the report asks "If a wealthy group of people, represented by our respondents, feel strongly about the high cost of dental care, how must the poor man feel about the situation? Can his needs ever be met by our current methods of providing dental care?"

### Facial Prostheses

A. C. Roberts. London, Henry Kimpton Publishers, 1971. 128 p. Illus. £3.50

This book contains a detailed description of the technology of facial reconstruction by prosthetic means. The author discusses documentation and preliminary planning, facial anatomy, techniques to obtain exact topography of the defect, material characteristics, tissue simulation, clinical application of prostheses, synthetic materials, and the effects of colour and light. The book concludes with a section containing thorough case histories.

### Oral Health Surveys: Basic Methods

Geneva, World Health Organization, 1971. (Available in Canada from Information Canada, Ottawa) 51 p. \$1.75

This publication provides guidance on the planning and execution of oral health surveys. Detailed attention is given to the selection of a sample population, the preparation of examiners, diagnostic criteria and the organization of surveys.

Data concerning dental caries, diseases of the oral mucosa, periodontal disease, dentofacial anomalies and prosthodontic needs can be recorded on a form reproduced in the manual. Detailed instructions are provided for completing the form.

Recommendations are made concerning the preparation of survey reports. Another section deals with oral health assessments not recorded on the survey form for basic data. These elective assessments include more detailed measurements and indices of dental caries,

oral hygiene, periodontal disease and dental fluorosis.

The World Health Organization has developed standard computer programs for the analysis of data collected according to the methods described in the manual and is willing to assist with the preparation and planning of surveys and with data analysis.

A French edition of this manual is in preparation.

### Becoming a Dentist

B. J. Sherlock and R. T. Morris. Springfield, Illinois, Charles C. Thomas, 1972. (Available from McGraw-Hill Company of Canada, Toronto) 138 pages. \$11.00

This book reports on the evolution of the professional in dentistry. Students from three California dental schools were studied throughout their four years of training. The effects of student background, motivations, school experiences and friendship networks upon becoming a professional were measured. How these recruitment and school factors influence the incorporation of technical skills and knowledge, professional ethics, career plans and other aspects of professionalism was determined.

Professional ethics were highest in the first year of school and declined precipitously during the remaining three years while cynicism increased in like measure. Interest in specialization and dental research also declined sharply after the first year.

The elite students from high social economic backgrounds, with fathers in the health professions, and with good university grades, were the most likely to have a low degree of professional ethics.

The myth of dentistry as a "second choice profession" was shown to be inaccurate. However, the average dental student looked on dentistry as a vehicle for his upward mobility, conceiving it to be as much an entrepreneurial career as a professional calling. Suggestions are made for improving the recruitment and education of dentists to meet the future need for socially conscious health professionals.

### Klinik und Therapie der Kieferzysten (Management of Oral Cysts)

Herbert Harnisch. Berlin, Buch- und Zeitschriften-Verlag "Die Quintessenz," 1971. 238 pages. Illus. DM 89.-

This German book gives an overview of the diagnosis and treatment of cysts



of the oral cavity. Surgical techniques, illustrated by line diagrams and photographs (some in colour), are described in a manner that any experienced practitioner may follow after appropriate study. Numerous radiographs and case histories supplement the clinical prospective and encourage comparison with readers' personal observations in their own practices. Apart from the value of the detailed descriptions of specific problems and their solution, the book serves as a useful reference guide to further study of the subject.

### Dix questions d'orthopédie dento-faciale

*Deuxième série. Paris, Julien Prêlat, 1971. 139 p. Illustré. 44 F*

Les textes ont été écrits par une équipe d'enseignants de l'Ecole Odontologique de Paris et visent à résumer les connaissances admises sur les sujets traités: (1) la théorie de Moss; la matrice fonctionnelle; (2) physiologie neuro-musculaire; (3) croissance et maturation; (4) les positions de référence de l'incisive inférieure et leur influence sur le plan de traitement; (5) la dysharmonie dento-maxillaire; (6) conduite du traitement en edgewise; (7) les forces extra-buccales appliquées sur les molaires supérieures; (8) la traction inter-maxillaire et la préparation d'ancrage; (9) le recul des canines après extraction des prémolaires; (10) le torque.

Conçus à l'intention des étudiants de l'Ecole, les textes sont maintenant publiés et retiendront l'attention des confrères qui s'intéressent à l'orthodontie.

### Prognathies mandibulaires

*Jean-Pierre Deffez. Paris, Julien Prêlat, 1971. 91 p. Illustré. 90 F*

Etude de 22 sujets dont les cas sont présentés à l'aide de 46 calques de téléradiographies du crâne. Un chapitre est consacré à une méthode de correction chirurgicale.

Ces propositions thérapeutiques s'adressent surtout au spécialiste en orthodontie et aux spécialités connexes. Belles illustrations.

### Parafonctions et processus d'autodestruction

*Walter Drum. Paris, Julien Prêlat, 1971. 102 p. Illustré. 58 F*

A partir de la théorie de l'autodestruction l'auteur examine les abrasions, les

maladies du périodonte, les échecs en prothèse, les maladies de l'articulation temporo-maxillaire, l'orthodontie, les maladies de l'oreille et l'autodestruction d'autres systèmes fonctionnels. Plusieurs cas pratiques sont décrits. Bien illustré. Bonne bibliographie. Vaut la peine d'être lu.

## Additions to the Library

ANDREASEN, J. O. Traumatic injuries of the teeth. Copenhagen, Munksgaard, 1972. 334 p

BOERING, G. Diseases of the oral cavity and salivary glands. A guide to the clinical and radiographic diagnosis with suggestions for therapy. Bristol, John Wright and Sons Limited. 264 p. \$19.12

DRUM, W. Zahnmedizin für Ärzte. Berlin, Buch- und Zeitschriften-Verlag "Die Quintessenz," 1972

EINFELDT, H. Die Quintessenz der Zahnärztlichen Hygiene. Berlin, Buch- und Zeitschriften-Verlag "Die Quintessenz," 1972. 179 p

FINN, S. B. et al, ed. The year book of dentistry 1971. Chicago, Year Book Medical Publishers. 478 p. \$13.65

FISCHER, C. H. Endodontie (Grundlagen, Überlegungen, Richtlinien). Berlin, Buch- und Zeitschriften-Verlag "Die Quintessenz," 1972. 156 p. Illus. DM 62-

FOGEL, M. S. and MCGILL, J. M. The combination technique in orthodontic practice. Toronto, J. B. Lippincott Company, 1972. 246 p. Illus. \$28.00

HENDERSHOT, L. C. et al, ed. Advances in orthodontics. (Oral research abstracts). Chicago, American Dental Association Publishers, 1972. 88 p. \$10.00

INTERNATIONAL ASSOCIATION FOR DENTAL RESEARCH. Program and abstracts of papers, forty-ninth general session, March 18-21, 1971. Chicago, 1971. 280 p. \$5.00

KAY, L. W. and HASKELL, R. Color atlas of oro-facial diseases. Chicago, Year Book, 1971. 288 p. Illus. \$25.70

LUCAS, R. B. Pathology of tumours of the oral tissues. Ed 2. London,

Churchill, 1972. 386 p. Illus. \$25.25

McCARTHY, F. M. Emergencies in dental practice. Ed 2. Toronto, Saunders, 1972. 526 p. Illus. \$19.60

McHUGH, W. D., ed. Dental plaque, a symposium. Dundee, Scotland, D. C. Thompson and Company Limited, 1970. 298 p. \$16.25

MOTLEY, WILMA E. Ethics, jurisprudence, and history for the dental hygienist. Philadelphia, Lea & Febiger, 1972. 175 p

NEWTON, T. H. and POTTS, D. G., ed. Radiology. 2 vols. St. Louis, Mosby, 1971. 873 p. Illus. \$82.45

NIZEL, A. E. Nutrition in preventive dentistry: science and practice. Toronto, Saunders, 1972. 506 p. Illus. \$13.40

O'BRIEN, R. C. Dental radiography; an introduction for dental hygienists and assistants. Ed 2. Toronto, Saunders, 1972. 218 p. \$8.25

PROVENZA, D. V. Fundamentals of oral histology and embryology. Philadelphia and Toronto, J. B. Lippincott Company, 1972. 284 p. Illus. \$14.95

QUINN, J. R. Medicine and public health in the People's Republic of China. US Dept of Health, Education, and Welfare, 1972

SAMSON, E. Future perfect: retirement planning and management. London, Henry Kimpton Publishers, 1972. \$1.75

SCHROEDER, H. E. and LISTGARTEN, M. A. Fine structure of the developing epithelial attachment of human teeth. Monographs in developmental biology. Vol 2. Basel, S. Karger, 1971. 134 p. illus. \$12.15

VAN STOLK, M. The battered child in Canada. Toronto, McClelland and Stewart Limited, 1972. 127 p

WORLD HEALTH ORGANIZATION. International histologic classification of tumours. Number 5. Histologic typing of odontogenic tumours, jaw cysts, and allied lesions. Switzerland. Book and slides

YULES, R. B. Atlas for surgical repair of cleft lip, cleft palate, and non-cleft velopharyngeal incompetence. Springfield, C. C. Thomas, 1971. 200 p. Illus. \$28.75



trying to provide high class care when only the bare minimum is desired. Perhaps dentistry has made itself too exact a science of healing and restoration.

*R. J. Archibald, DDS  
402A King St  
Bridgewater, NS*

### Challenging position for dentist

The Downtown Community Health Society is looking for a dentist who would be interested in the challenge of working with us to set up a dental service in Vancouver's skid row.

The Society already runs a free medical clinic staffed by a full-time physician, registered nurses and other health care workers. This clinic has been in operation for more than a year now and is currently undertaking research into consumer participation in the delivery of health care services, a project financed by a national health grant.

Recently the Society received a substantial grant to equip a two-chair dental facility and we are now seeking an adventurous dentist to join with us in developing this new facet of our work. The Society will provide the facility and the salary: all we need is the right dentist willing to provide the necessary professional skills and commitment to a community operated health centre.

*Peter Davies  
Chairman of the Board of Directors  
The Downtown Community Health  
Society  
373 East Cordova St  
Vancouver 4, BC*

### National policy for oral health

In reply to the editorial in the August issue outlining the need for a national policy for oral health, allow me to draw your attention to a practical method for delivering such a service on a nationwide basis. The key is to use someone who has a great deal of influence on a large number of people. The elementary classroom teacher is just such a person.

A prevention program which is based upon the utilization of a teacher trained in the techniques of preventive dentistry could ultimately produce a generation of teenagers with far better oral health than any generation of young adults up to this time. If this approach were implemented on a national basis, potentially every human being in this country would be trained by the most influential person in a child's life — the elementary school teacher.

Such a program would be based on all facets of preventive dentistry and could be easily taught and practised in the classroom. Of course dentists would have to train the teachers in the necessary techniques and provide them with the knowledge which would form the basis of a sound personal dental care program.

It is only through this type of controlled approach that I feel the level of oral health in this country can be significantly improved within a few years of the implementation of such a program.

*Mark Lazare, DDS  
612 St. John's Rd  
Pointe Claire 720, Que*

### Cost of dentures

I would like to express an individual voice of support for the editorial, "A Shabby Deal," published in the August issue of the Journal. Government today, as always, seems to be most concerned with the issues that are popular, but not always correct.

There is one area I disagree with, however, and it relates to your comments regarding the cost of dentures. It would seem, based on past experience, that mechanics' fees for dentures soon approximate those of the dentists once legalization occurs. Also, why should health care be the cheapest thing available? It costs a great deal of time and money to prepare oneself for this profession and there should be some return.

In the area where I practise it seems that people have a lot of money to spend on colour TV's and snowmobiles, but none to spend on dental care. Why should the dental profession suffer because the public does not have its priorities aligned to dental health?

Perhaps we have gone too far in expecting the public to embrace the complete dental care available. We are

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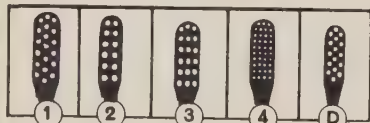


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### Marking of dentures — follow up

There have been several inquiries concerning the marking of dentures from a letter printed in the September issue of the Journal. Six reasons for marking full dentures were described at that time and among those not listed is the fact that laboratory technicians find it harder to lose or misplace a denture if the social security number of the patient is marked on the denture.

The present letter will attempt to describe several methods by which dentures are marked.

1. Engraving: This system involves marking the models or impressions so that the denture carries the identification marks upon fabrication. This system may lead to soft tissue irritation as a result of "high spots." Subsequent "grinding in" of the high spots may lead to the elimination of the identification marks.

2. Scribing: This method involves the marking of a denture after it has been fabricated either with a bur, stone, diamond, knife or any other sharp instrument. This is also one way of marking old dentures. This method may again lead to soft tissue irritation and in certain cases to loss of retention if placed on the tissue bearing denture surface.

3. Writing: This system has been used mostly in homes for the aged. It involves the slight discing of the posterior flange area of a denture (non-tissue bearing side), marking the social security number on the roughened surface with a marking pencil and painting a coat of clear nail polish over the area. The advantages are that it is an easy, cheap and practical way of marking old dentures. The disadvantages of this system are numerous not to mention the fact that these identification marks last for a period of no more than two to three years on the average.

4. Inclusion: This method can be divided into two groups: (a) supra-inclusion and (b) infra-inclusion. Supra-inclusion is now being tested by the McGill University dental teaching clinic. It involves the typing of the social security number on a thin sheet of onion skin paper. On the back of this paper is a carbon sheet which faces the onion skin. The reverse side of the onion skin is thus imprinted. The latter side is then placed in the flask, face

upwards on the tissue bearing surface of the future denture. The acrylic is packed in the normal fashion, left to cure and the carbon particles (social security number) are absorbed by the curing acrylic. Once the denture has been cured the onion skin paper is removed and the social security number remains on the tissue bearing surface of the denture.

Infra-inclusion involves the replacement of part of the denture material (pink acrylic) with a second material (clear acrylic) and a medium upon which is inscribed pertinent information such as social security number. Subsequent processing or flasking of the denture incorporates the inscribed medium and the clear acrylic into the denture so that no irregularities exist on the tissue bearing surface of the denture. In truth, the inscribed material becomes part of the denture and not an addition to (engraving) or a removal of (scribing and writing) the denture. With the infra-inclusion method any one of the following four media have been used:

1. Paper, onion skin, nylon, linen or fiberglass. Identification marks such as social security number can be written on any one of these media in pencil, with a pen, with India ink or can be typewritten.

2. Metal inserts such as Luxene, stainless steel or aluminum, with or without an asbestos covering.

3. Objections to the visual display of identification marks have led to the use of invisible ink on pink toilet paper. The tissue paper blends in well with the acrylic and the identification marks are invisible to the naked eye. Ultra-violet light must be used in order to make the I.D. marks visible.

4. The use of radiopaque materials such as Stellan and Chex gauze which both contain barium sulphate and Raytec which contains elastic radiopaque material are being used experimentally to mark dentures.

Advantages and disadvantages can be enumerated for each of the methods described. The point is it doesn't matter what method is used as long as it is used for each and every complete denture.

R. B. J. Dorion, DDS  
2427 Montclair Ave  
Montreal 262, Que



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# EXECUTIVE DIRECTOR'S PAGE



W. G. McIntosh, DDS

## FDI to meet in Toronto in 1977

The Canadian delegates to the General Assembly meetings of the *Fédération Dentaire Internationale*, held in Mexico City in October, are pleased to report that the Canadian Dental Association's invitation to hold the 1977 World Dental Congress in Toronto, October 17 to 24, was accepted. A full report on the 1972 meeting will be available in the near future. However, a few noteworthy comments are included here.

CDA's delegates and alternate delegates to the FDI business sessions included: President D. K. Peters, Dr. H. R. MacLean, Dr. D. W. Gullett, Dr. Jean-Paul Lussier, Dr. George Decker and your executive director.

CDA's invitation to hold the 1977 Congress in Toronto was supported by letters from representatives of the federal government, the Province of Ontario and the City of Toronto. Mr. M. Schwarzmänn, the Canadian ambassador in Mexico, and Mrs. Schwarzmänn, together with Miss Annette Fortier, Canadian tourist representative for Mexico and Latin America, also hosted a reception for FDI officials at the ambassador's residence. The reception was delightful and, along with the support letters, helped influence the General Assembly to accept the Canadian invitation.

The Mexican meeting attracted more than 10,000 participants and guests, including more than 300 Canadian dentists. Rough estimates for the Congress

in 1977 suggest registration figures will range between 20,000 and 30,000. Preliminary planning and organization for the '77 Congress will begin immediately under the direction of Dr. Murray Cornish of Toronto who has been named chairman of the Organizing Committee.

In addition to some 300 scientific presentations on all aspects of dental health care and 200 dental exhibits, productive discussions took place on such topics as: international standards for dental materials and devices; international guidelines for clinical trials to test new therapeutic agents and techniques; internationally recognized methods for reporting occlusal relationships; and the effective utilization of auxiliary personnel. The Federation's primary objective of "encouraging international programs which will advance the science and art of dentistry and the status of the profession of dentistry in the interest of improved dental and general health for all peoples" is the common bond which gives purpose and direction to all FDI programs.

One new project that will undoubtedly attract universal attention is a joint study being undertaken by the World Health Organization and the US Public Health Service. The objective of the project is to study dental health delivery systems in relation to the status of dental health in the community being served. Australia, Bulgaria, Germany, Japan, New Zealand and Norway have agreed to participate in the study and cooperate with survey teams which will include epidemiologists and sociologists as well as dental and medical observers. The project, to be conducted through 1973 and '74, is unquestionably an extremely difficult one but its potential for influencing delivery systems for dental health care should not be overlooked.

FDI presidents normally hold office for two years. President Harold Hillenbrand therefore continues in office until the end of the 1973 annual session.

Dr. Gerald Leatherman, the executive director, was re-elected for another term of three years and Dr. A. Scheinin, Finland, was re-elected as speaker.

Your executive director was elected one of four vice-presidents, the others being Dr. Louis J. Baume, Switzerland, Dr. W. A. Grainger, Australia, and Professor J. W. Knutson, USA.

The 1973 annual session of the *Fédération* will be held in Sydney, Australia, July 14 to 20. Our colleagues from down-under extend a hearty invitation and promise a scientific and social meeting long to be remembered.



## Dental Organizations

### Nova Scotia study project gets data on dental needs

A recent study project launched in Sherbrooke, NS, was developed to obtain information for government regarding the kind of demand for dental care which is evident in communities where there is no resident dentist.

Dalhousie University's five chair mobile clinic was borrowed and set up at the high school in Sherbrooke during the month of October. A total of 52 dentists volunteered their own services and that of their assistants for the project. Treatment was available to anyone who requested it.

Volunteer services were co-ordinated by two Halifax dentists, Raymond Epstein and Charles Oler.

There were about 1,000 patient visits during the 23 working days, with more than half of the patients being less than 16 years of age. The study project yielded meaningful data which are expected to be valuable in future discussions with government regarding the delivery of dental services.

Results of the comprehensive program will be presented to the provincial task force on denticare, according to Douglas A. Eisner, president of the Nova Scotia Dental Association.

Commenting on the project, Dr. Eisner stated: "As a result of this study we have concluded that the mobile approach in dental care may best be the answer to the dental needs of rural areas across the province. At this point in time, the Nova Scotia Dental Association, sponsors of the program, are convinced that the mobile method



Dr. Jean-Paul Lussier, dean of the University of Montreal's Faculty of Dentistry, and Dr. David K. Peters, president of the Canadian Dental Association, were two of the delegates representing Canada at the General Assembly meetings of the Fédération Dentaire Internationale held in Mexico City in October.

approach is certainly one of the criteria that should be considered by the province's task force on dental care".

### Children's dental program progressing well in Nfld

The Newfoundland Dental Association recently reported that the children's dental program, now in its second year of operation in the province, is progressing well.

A year ago the provincial government increased its free dental program to include comprehensive treatment for all children 10 years of age and under. This change, coupled with Newfoundland's shortage of dentists, created an immediate impact on the workload of each practitioner. However, the situation has now levelled out and dentists have been able to adjust to the heavier work schedules.

## Economics

### Proposed amendments to the Income Tax Act: mutual funds and retirement savings plans

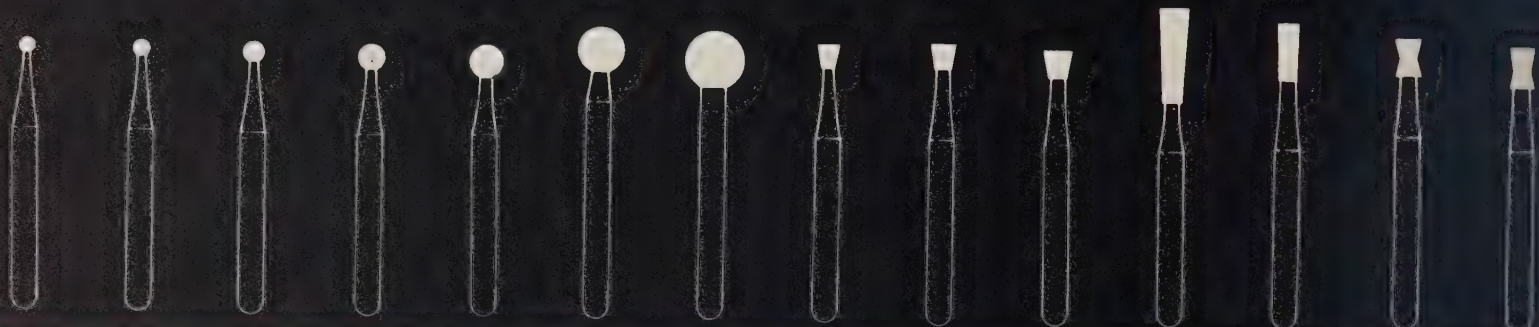
Four amendments affecting mutual funds and retirement savings plans are proposed to be introduced in the next Parliament.

The first amendment would provide that where a refund of premiums from a registered retirement savings plan has been paid to an estate upon the death of the holder of the plan and the refund has been included in the income of a beneficiary of the estate, it may be designated as a "refund of premiums received by the beneficiary."

The second amendment would provide that the amount of retirement savings plan premium, or a contribution to a pension plan would not be subtracted in calculating earned income.



# performance



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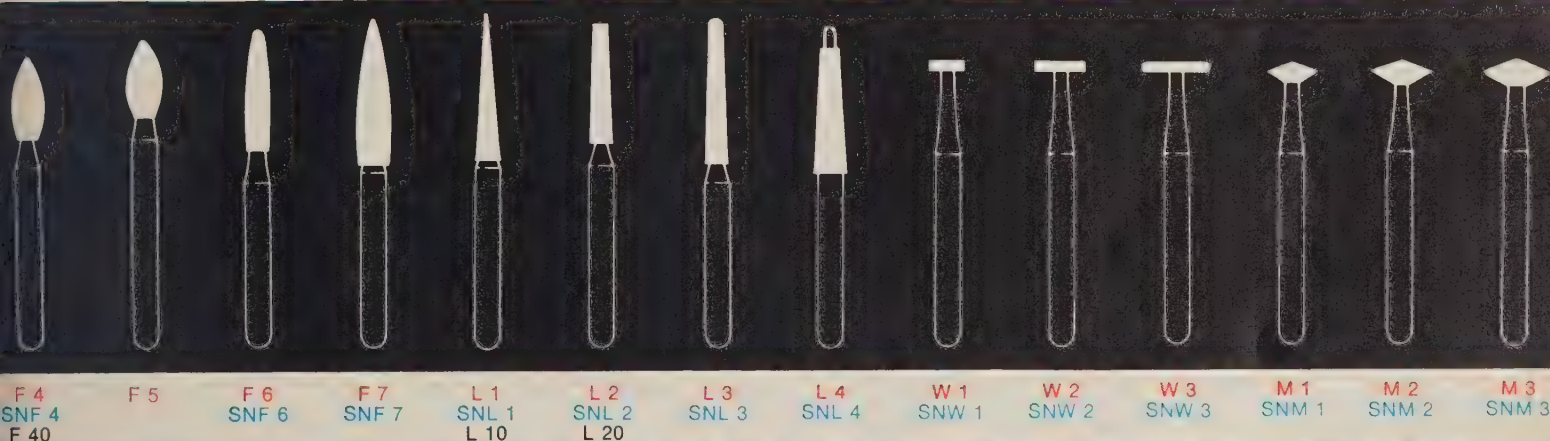
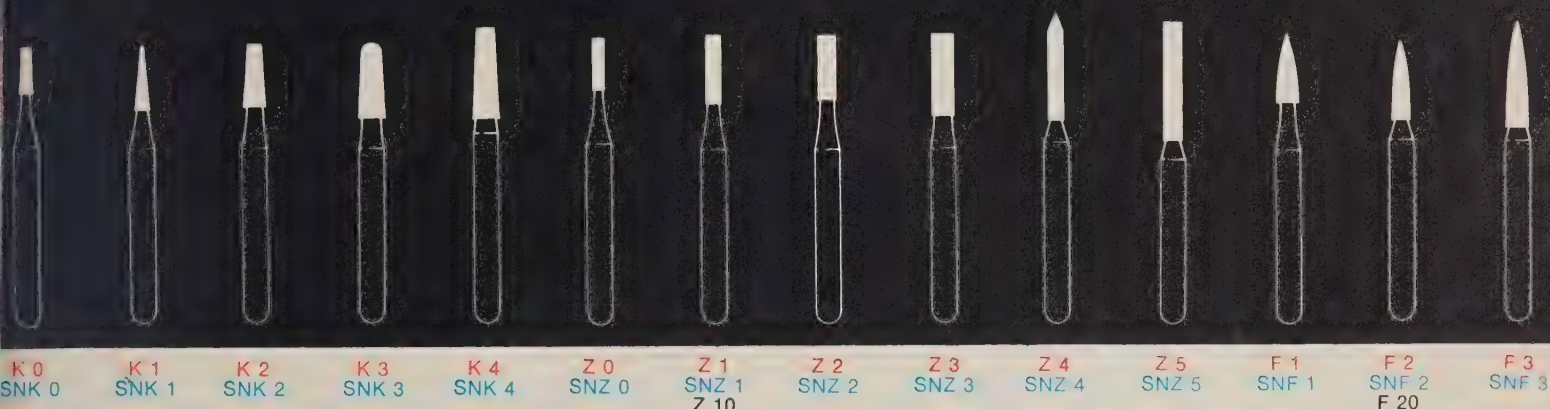
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# YOUR SECURITY

*This is the seventh in a series of articles on insurance and investment programs available through the dental profession.*

Some of the most stressful times in the lives of people occur during bouts of illness.

This fact prompted the Canadian Dental Association, through Canadian Dental Service Plans Inc, to offer dentists a relief from this kind of stress when they launched a Blue Cross "extended health care program for members." That was in January of 1959. Today, half of the nation's dentists take advantage of the low cost package offered.

W. E. (Gene) Jackson, general manager and administrator of all CDA insurance and investment plans, points out that "the various hospital and health plans offered by each province during the 1960s prompted a number of dentists to feel that Blue Cross coverage is redundant. Now, of course, they have come to realize that as self-employed professionals there is a pressing need for some form of additional coverage. I am pleased that so many dentists have come to realize that our arrangement with Blue Cross is particularly generous and low in cost."

The plan is flexible too. Where some provinces pay for ambulance services, others do not. Some provinces pay for diagnostic services, others do not. The CDSPI-Blue Cross package takes care of these discrepancies in health care, where they are needed.

As revised in early 1972, the plan affords dentists a 14 point program of benefits. These are:

- Drugs serums, injectibles and insulin purchased on the prescription of a medical doctor, except for vitamins and vitamin preparations (unless injected) and patient or proprietary medicines.

- Private nursing by a registered nurse who is registered in any province (not a relative) either in the hospital or home, providing it is ordered by the attending physician.

- Services of a registered or licensed physiotherapist when not covered by a government agency. Diagnostic services when not covered by a government agency.

- Difference in cost between semi-private accommodation and a private room (but not a suite) in a public general hospital.

- Charges up to \$10 a day for care in a licensed private hospital, to a maximum of 120 days.

- Purchase or rental of special remedial appliances, artificial limbs, etc when not covered by a government agency.

- Specialized treatments, such as radium and radio-isotopes.

- Ambulance services when not covered by a government agency.

- Payment to registered clinical psychologists up to \$35 for the first visit and \$20 per hour for

The third amendment would extend by six months the period during which certain investments acquired by a trust for a pension plan, a deferred profit sharing plan or a retirement savings plan would be qualified investments and not foreign property.

The fourth amendment would change the definition of "foreign investment limit" to include amounts received in respect of capital gains. The foregoing proposals are contained in a recent News Release issued by Minister of Finance John N. Turner.

*Extract from Canada Income Tax Guide Report dated October 25, 1972, by permission of C. C. H. Canadian Limited.*

## CDA Retirement Savings Plan

Unit values of the Canadian Dental Association Retirement Savings Plan stood as follows on October 31, 1972:

*Fixed Income Fund* \$13.333;

*Common Stock Fund* \$29.263.

Total assets (market value) of the plan were \$13,801,751.88.

The following portfolio purchases and sales occurred during the preceding month: bought 8,938 shares Corporate Fixed Income Fund; sold 9,500 shares Weldwood of Canada.

For further information please write to CDA-sponsored Pension and Insur-

ance Plans, 230 St. George St, Toronto, Ont, M5R 2P2.

## Deaths

Campbell, George Harold. 94. Orangeville, Ont. Royal College of Dental Surgeons of Ontario, 1902. 4-11-72. Survived by George and John (sons); Lyle (brother); and Mrs. Edna Dorrance (sister).

Harris, Saul. 72. Montreal. McGill University, 1924.

Hill, John Francis. 82. Vancouver. University of Southern California, 1917. 3-12-72.



subsequent treatments to a maximum of \$200 during a benefit year in all.

— Payment to registered masseurs up to \$7 per treatment for not more than 12 treatments per benefit year, but only when a medical doctor provides a certificate that such treatment is necessary.

— Payment for medical fees, when such fees are over the applicable provincial schedule of fees, is not greater than what would be paid in the subscriber's home province.

— Eyeglasses up to a total amount of \$40 per person in any period of 24 consecutive months when provided on the written prescription of a medical doctor or optometrist by the cost of the eye examination.

— Hearing aids on the written prescription of a medical doctor to maximum of \$300 in all, per person.

There is a modest deductible clause attached to the benefit package. One hundred per cent of the cost is reimbursed after deducting the first \$50 in a period of 12 consecutive months. An insured dentist and his family, regardless of size or number of claims, is not required to pay more than the equivalent of two individual deductibles (\$100) in any period of 12 consecutive months.

It is comforting to realize that even though there is the \$50 deductible clause, there is no maximum amount of benefit, overall.

Any practising dentist is eligible to join the CDA/Blue Cross program. And the program may be used to cover dependants (to age 25) and wives. All employees of dentists are also eligible to join. Unlike many health benefit plans, this one does

not cost more when the dentist is over age 65. At the same time, there is no age limit.

One additional and unusual benefit for wives and dependants is that the CDA/Blue Cross protection can be continued after the death of a dentist. For the dentist in his early and middle years of practice this can be particularly comforting knowledge when he puts together his protection portfolio. The independent professional's old lament "I can't afford to be sick" is laid alongside other slain shibboleths.

The annual cost of the total Blue Cross Protection package amounts to just \$107.40 for a family and \$47.40 for a bachelor dentist.

In Ontario fees are lower since semi-private hospital care is covered by the province's mandatory hospital insurance plan. Family plan CDSPI/Blue Cross fees in Ontario are \$83.40 and the single plan is \$35.40 annually.

There are many cases in the files of CDSPI of dentists who regard themselves as exceedingly foresighted because they took advantage of the extended health care program embodied in the Blue Cross program. The key word in such situations is "extended." Case after case of illnesses lasting for more than a full year are common. One dentist has even attested that "without Blue Cross, I would have been in dire straits. My bills for extra services came to well over \$3,000 in a single year and Blue Cross paid nearly 90 per cent of them."

Applications for this form of health expense protection can be obtained by writing directly to Canadian Dental Service Plans Inc, at 230 St. George Street in Toronto.

---

Jackson, John Archibald. 79. Dunnville, Ont. Royal College of Dental Surgeons of Ontario, 1923. 25-11-72. Survived by Ruby (wife) and Mrs. Thomas Hughson (sister).

James, Stewart McKee. Toronto. Royal College of Dental Surgeons of Ontario, 1917. 23-11-72. Survived by Mrs. Irene Smythe and Dr. Elda Harris (sisters).

Lappin, John Elmer. 72. Toronto. University of Toronto, 1928. 16-11-72. Survived by Muriel (wife); Paul and Harley (sons); and David and Herbert (brothers).

MacMillan, Edwin Arthur. 77. Whitby, Ont. Royal College of Dental Sur-

geons of Ontario, 1922. 28-10-72. Survived by Hannah M. (wife); Ruth (daughter); and Almina (sister).

McCubbin, John Gillies. 65. Chatham, Ont. University of Toronto, 1935. 29-9-72. Survived by Winnifred (wife); Ronald, Paul and Bruce (sons); Robert (brother); and Mrs. Paul Moreland (sister).

Mullett, Harrison J. 80. Toronto. Royal College of Dental Surgeons of Ontario, 1917. 7-12-72. Survived by Pearl J. (wife); Dr. John H. Mullett (son); and Robert and Mary Lou (grandchildren).

Nind, Edward Benjamin. 78. Hamilton, Ont. Royal College of Dental Sur-

geons of Ontario, 1924. 27-9-72. Survived by Albert (brother) and Mrs. Ada Nind-Buyse (sister).

Perry, Roy Prince Edward. 62. Windsor, Ont. University of Toronto, 1940. 27-10-72. Survived by Charlotte (wife) and Mrs. Gertrude Day and Mrs. Myrtle Scott (sisters).

Porter, Edward Francis. 67. Hamilton, Ont. University of Toronto, 1954. 23-11-72. Survived by Jean (wife) and Andrew and Stephen (sons).

Wilkinson, Egbert. 71. Edmonton. University of Alberta, 1927. 13-10-72. Survived by Kathleen C. (wife); Robert F. and Terrance W. (sons); three brothers; one sister; and eight grandchildren.







## Le Canada

### Le ministre de la Santé endosse les principes exprimés dans le rapport Wells

A la suite de la recommandation du Conseil fédéral de la Santé, le ministre de la Santé et du Bien-être social, monsieur John Monroe, a adopté les principes exprimés dans le rapport du comité ad hoc sur les auxiliaires dentaires (Wells), touchant la question de l'emploi, de la formation et de la réglementation de la main-d'oeuvre.

Il a aussi souligné que le Conseil recommandait que le gouvernement examine soigneusement le rapport et applique les recommandations, en respectant leurs priorités respectives. Ces priorités ont trait au programme dentaire pour les enfants et mettent l'accent sur la prévention, l'éducation et le traitement.

### Les programmes de services dentaires impriment une orientation nouvelle aux accords collectifs

Les premiers programmes de services dentaires qui font l'objet des pourparlers d'un syndicat majeur de l'industrie canadienne avec les employeurs de la grande industrie apparaissent dans les termes des accords signés récemment par l'International Nickel Co of Canada Ltd, la Steel Co of Canada Ltd, ainsi que l'Algoma Steel Corp Ltd avec les Syndicats des employés des aciéries d'Amérique (United Steel Workers of America).

Les trois sociétés offrent aux membres et à leurs dépendants des programmes de soins dentaires courants très étendus. Chaque programme prévoit une déduction de \$25 annuellement et assume 80 p.c. des frais des

soins dentaires de routine d'après le barème des honoraires établi par l'Association dentaire de l'Ontario. Les soins couverts ne comprennent pas les soins orthodontiques, les couronnes, les ponts, les dentiers complets ou les frais dépassant le barème de l'ADO.

L'industrie de l'alimentation au détail a aussi inauguré une orientation nouvelle prévoyant un programme transférable de soins dentaires compris dans les avantages pécuniaires supplémentaires résultant des deux accords collectifs négociés récemment. Ceux des magasins Dominion Ltd avec le Syndicat des employés de magasins (Retail Wholesale and Department Store Employees Union) ainsi que les accords des magasins Steinberg's Miracle Mart Stores avec leurs employés.

Les deux chaînes de super-marchés verseront au Syndicat cinq cents par heure de travail comme fonds de soutien pour assurer le fonctionnement du programme qui est transférable d'une firme à une autre.

### Des techniciens en anesthésie-inhalothérapie assisteront les anesthésistes dans les salles d'opération

Les médecins anesthésistes pourront désormais être assistés, dans leurs activités médicales, par des techniciens en anesthésie-inhalothérapie qui auront reçu une formation spécifique en ce sens. Ces techniciens seront formés dans les Cegep, suite à des initiatives du ministère des Affaires sociales et du ministère de l'Éducation visant à offrir une meilleure utilisation des ressources humaines au sein d'équipes multidisciplinaires.

Le programme de formation du technicien en inhalothérapie, actuellement dispensé par les Cegep, sera modifié de façon à permettre aux étudiants qui termineront leurs études en 1974

de remplir cette nouvelle tâche et de se qualifier aussi comme techniciens en anesthésie.

Entre-temps, des programmes de recyclage seront également offerts aux techniciens en inhalothérapie qui sont actuellement à l'emploi des centres hospitaliers, afin de leur permettre d'acquérir cette nouvelle qualification et d'assister les médecins anesthésistes.

Des centres hospitaliers désignés après consultation entre les deux ministères apporteront leur collaboration à la formation clinique des étudiants dans les Cegep qui dispenseront ce nouveau programme.

## Chronique internationale

### Mission Medics en France

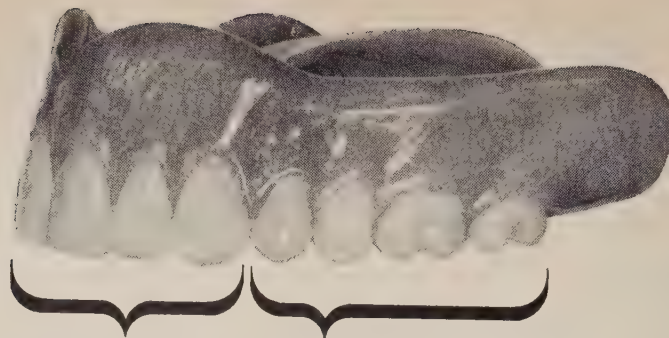
Cinq membres de la Direction générale de la planification au ministère des Affaires sociales effectuent une mission de 15 jours en France, dans le cadre des accords de coopération franco-québécois, afin d'établir des contacts permanents avec des centres de recherche français dans le domaine des indicateurs sociaux en matière de santé.

Les participants sont MM. André B. Hurtubise, Gilles Payette, Jean-Marc Rousseau, Gilles Renard et Bernard Rheault, tous rattachés au programme Medics ou modèle d'évaluation des interrelations complexes de la santé.

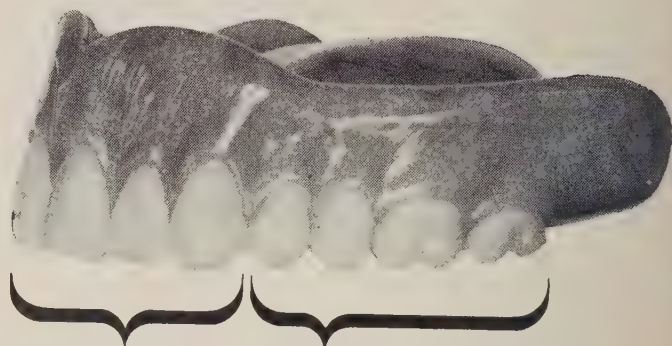
Le programme Medics constitue un effort majeur, au niveau de la recherche et du développement, dans le secteur de la santé et son objectif global consiste à mettre au point un instrument scientifique de support pour la planification dans ce secteur. L'équipe de développement a maintenant franchi, après un an, une étape préliminaire qui a permis de mettre au point une première version d'un macro-simulateur du système de la santé au Québec. La logique de structure de ce modèle mathématique a été conçue en fonction d'utilisations multiples. Le modèle pourra éventuellement fournir des prévisions, sur un horizon de cinq à 10 ans, à partir des tendances courantes ou des modifications anticipées; il pourra simuler des changements pour permettre d'en tirer les implications au chapitre de l'organisation; il permettra de situer les points où convergent un maximum



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dans la qualité et la quantité des services avec un minimum dans les coûts.

Les participants à la mission tiendront des séances de travail au ministère des Affaires sociales de France; à l'Institut national de la santé et de la recherche médicale (INSERM); au Centre de recherches et de documentation sur la consommation (CREDOC); au Centre de recherches sur le bien-être (CEREBE); au Commissariat à l'énergie atomique ainsi qu'aux universités de Rouen, de Rennes, de Nancy et de Nanterre.

La mission a débuté le 25 novembre et se poursuivra jusqu'au 10 décembre.

## Enseignement dentaire

### Normes nationales requises pour l'enseignement dentaire

Les normes et les objectifs généraux de l'enseignement dentaire permanent devraient se formuler au palier national. Telle est l'opinion générale des délégués qui ont participé à la première conférence nationale sur l'enseignement dentaire permanent tenue à Toronto du 25 au 27 septembre dernier à l'Institute for Studies in Education de l'Ontario.

Cette conférence fut organisée par le Conseil de l'enseignement de l'Association dentaire canadienne grâce à une subvention de \$16,000 du ministère de la Santé nationale et du Bien-être social.

Le docteur G. S. Beagrie, assistant directeur de la Division de l'enseignement dentaire post-universitaire de l'Université de Toronto, agissait comme président. L'objectif de ces assises consistait en l'examen de tous les aspects de l'enseignement permanent de la dentisterie, soit: l'envergure de nos besoins dans ce domaine, les modalités de l'organisation et de l'administration qui s'y rapportent, le rôle que le gouvernement, les organismes habilités à autoriser la pratique, les associations et les facultés devraient assumer dans les mécanismes du système de distribution adopté.

Les délégués furent d'accord pour considérer l'enseignement permanent comme une entité majeure de l'enseignement dentaire, un aspect qui réclame l'assistance d'une planification et d'une organisation intégrée.

Ils sont aussi tombés d'accord sur la nécessité d'établir un organisme national qui aurait pour mission de formuler les normes et les objectifs généraux sur une base nationale. Cette approche garantirait les dispositions nécessaires pour répondre aux besoins urgents de recherche et d'études sur les divers aspects de l'enseignement permanent.

Les délégués ont de plus exprimé la requête de coordonner l'action de tous les groupes concernés dans le domaine de l'enseignement permanent. A l'issue de la conférence, le docteur Beagrie déclarait: "A l'avenir, la planification des cours ne devra plus reposer sur un homme isolé mais être confiée à une équipe recrutée dans les facultés, les associations, la population et les organismes habilités à autoriser la pratique, et cela aux paliers provincial et national".

Faisant allusion au Centre de l'enseignement fondé en Colombie-Britannique, le docteur Beagrie exprima le vœu de voir d'autres centres similaires s'établir au Canada. Munis de "modules" d'enseignement, les dentistes de ces centres oeuvreront individuellement ou en équipe. Bien que dispendieux, les "modules" d'enseignement conviennent idéalement aux dimensions géographiques du Canada. Le docteur Beagrie a révélé qu'une expérience-pilote serait tentée dans ce domaine par l'entremise d'un organisme national qui utiliserait les services d'enseignants experts, représentant diverses disciplines de par le pays, afin de constituer des "modules" d'enseignement.

Comme suite à la conférence, il fut suggéré que le Conseil de l'enseignement de l'Association dentaire canadienne pourrait constituer un Comité d'élaboration, composé de représentants des provinces et des organismes habilités à autoriser la pratique, afin d'étudier sérieusement, dans son ensemble, la question de l'enseignement permanent.

## L'économie

### Transport gratuit des nouveaux-nés entre les hôpitaux et les centres de soins intensifs

Les nouveau-nés qui ont besoin de soins médicaux intensifs pourront désormais être transportés, aux frais du ministère des Affaires sociales, du lieu

de leur naissance à un des trois hôpitaux québécois dotés de centres de soins intensifs néo-nataux soit: l'hôpital Sainte-Justine et le Montreal Children's Hospital à Montréal, et le Centre hospitalier de l'Université Laval à Québec.

Cette décision fait suite aux recommandations du Comité d'étude de la mortalité périnatale du Québec et aux recherches de la Direction générale de la planification qui ont révélé qu'à l'intérieur même du Québec, les nouveau-nés ont plus ou moins de chances de survie selon les régions où ils naissent. Ainsi, en 1970, le risque de décès infantile était nettement plus élevé dans les régions du Bas-Saint-Laurent-Gaspésie, de la Côte-Nord, du Nord-Ouest et surtout du Nouveau-Québec que dans les autres régions de la province. Ces recherches notaient aussi un risque plus élevé de décès infantile en milieu rural qu'en milieu urbain.

### Avis aux membres qui souscrivent au programme d'épargne-retraite de l'ADC

*Amendements proposés à la loi sur l'impôt concernant les programmes d'épargne-retraite.*

L'article (146 (8)) de la nouvelle loi sur l'impôt a semblé accorder aux compagnies d'assurance certains avantages sur les compagnies de placement en ce qui concerne les remboursements des primes au décès de l'assuré.

D'après le contrat d'assurance sur la vie que comporte le programme épargne-retraite, l'assuré peut désigner un bénéficiaire suivant les clauses des lois provinciales d'assurance. Il faut cependant qu'en vertu du programme d'assurance-retraite enregistré le fait de désigner un bénéficiaire équivale à une clause testamentaire qui doit cependant se conformer aux formalités prescrites par la loi.

Dans le cas, par exemple, d'un assuré décédant sans testament, il semble que le remboursement des primes prévu par le programme d'épargne-retraite enregistré irait à la succession et qu'en l'occurrence sa veuve ne pourrait bénéficier des articles 60 (1) et 61 (2) (d) de la loi.

Le premier article permet au bénéficiaire de transporter sans imposition fiscale le produit du programme d'épargne-retraite du défunt à un autre compte enregistré à son nom. Le se-



cond article lui permet de reporter toute redevance fiscale sur un certain nombre d'années déterminées en se procurant une annuité moyenne ultérieure. Le 11 septembre 1972, le ministre des finances a émis une ordonnance indiquant plusieurs amendements à des articles de la loi sur l'impôt affectant les programmes d'épargne-retraite.

L'un de ces amendements stipule que dans le cas où un remboursement de primes, garanti par un programme d'épargne-retraite enregistré, a été effectué à une succession, à la suite du décès de l'assuré, et que le montant de ce remboursement a été inclus dans le revenu du bénéficiaire de la succession, il peut être considéré comme "un remboursement de primes reçu par le bénéficiaire".

Cet amendement permet au conjoint survivant de bénéficier des deux articles 60 (1) et 61 (2) (d) de la loi et classe les programmes d'épargne-retraite dans la même catégorie que les programmes d'assurances.

Cet article a été préparé pour dissiper tous les doutes qui pourraient subsister dans l'esprit des souscripteurs au programme d'épargne-retraite de l'ADC au sujet de l'imposition fiscale.

*W. E. Jackson, administrateur  
Programme d'épargne-retraite  
enregistré de l'ADC*

## Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 31 octobre 1972:

*Fonds à revenu fixe* \$13.333;

*Fonds d'actions ordinaires* \$29.263.

L'avoir total (valeur marchande) du régime se montait à \$13,801,751.88.

Au cours du mois précédent, les transactions ont été les suivantes: achat 8,938 actions de Corporate Fixed Income Fund; vente 9,500 actions de Weldwood of Canada.

Pour de plus amples renseignements, veuillez écrire à: CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto, Ont, M5R 2P2.

## VOTRE SÉCURITÉ

*Cet article est le septième d'une série traitant des programmes d'assurances et de placement disponibles aux membres de la profession dentaire.*

Les périodes où la maladie nous atteint sont parmi celles que l'on juge les plus opprimantes de l'existence.

Cette réalité a incité l'Association dentaire canadienne, par l'entremise des Programmes de services dentaires Inc (CDSPI), à prendre des mesures susceptibles de réduire ce genre de stress chez les dentistes, en inaugurant "le programme étendu de soins de santé pour ses membres". Cette réalisation date de janvier 1959. Aujourd'hui, la moitié des dentistes canadiens se prévalent des avantages de cette protection à coût modique.

Monsieur W. E. Jackson, directeur général et administrateur de tous les programmes d'assurance et d'investissement de l'ADC signale que "les divers programmes de santé et d'hospitalisation offerts par chaque province au cours de 1960 entraînent un certain nombre de dentistes à considérer comme superflue la protection offerte par la Croix-Bleue. Toutefois, ils se rendent compte aujourd'hui qu'étant leur propre employeur ils doivent recourir à une forme quelconque de protection additionnelle. Nous constatons avec plaisir qu'un nombre aussi élevé de dentistes ont découvert que nos arrangements avec la Croix-Bleue sont particulièrement généreux et peu coûteux.

De plus, le programme est flexible. Certaines provinces assument les frais de transport en ambulance, d'autres pas. Certaines provinces paient les services diagnostiques, d'autres non. La protection combinée du Programme de soins dentaires Inc (CDSPI) et de la Croix-Bleue compense au besoin les disparités existantes dans les programmes de soins de santé d'une province à une autre.

Tel que révisé au début de 1972, le programme pourvoit les dentistes de la protection d'un programme en 14 points, nommément:

— Les sérums, les substances injectables et l'insuline obtenues sous ordonnance médicale, sauf les vitamines et les préparations vitaminées (excepté quand ces dernières sont injectables) ainsi que les médicaments brevetés ou non.

— Les services infirmiers dispensés par une infirmière diplômée (sans lien de parenté avec le malade) dont la pratique est autorisée dans la province, soit à l'hôpital ou à domicile, à condition que ces soins aient été prescrits par le médecin traitant.

— Les services dispensés par une infirmière ou un physiothérapeute autorisés quand ces services ne



sont pas fournis par un organisme public. Les services diagnostiques, quand ils ne sont pas fournis par un programme gouvernemental.

- La différence entre les tarifs exigés pour une chambre semi-privée et une chambre privée (mais non une suite) and un hôpital général public.

- Les frais, jusqu'à concurrence de \$10 par jour, exigés pour les soins dispensés dans un hôpital privé autorisé, pour une durée maximale de 120 jours.

- L'achat ou la location de certains appareils thérapeutiques, de membres artificiels etc, quand ces frais ne sont pas assumés par un programme gouvernemental.

- Les traitements spécialisés tels que les traitements au radium et aux radio-isotopes.

- Le transport en ambulance, quand ce service n'est pas fourni par un programme gouvernemental.

- Les frais exigés pour des traitements par des psychologues cliniciens, jusqu'à concurrence de \$35 pour la première visite et de \$20 de l'heure pour les traitements subséquents, et ne dépassant pas un montant total de \$200 pour une année entière.

- Les frais exigés par les masseurs autorisés, jusqu'à concurrence de \$7 par traitement pour un nombre total ne dépassant pas 12 par année, à condition qu'ils soient recommandés par un certificat médical.

- Le paiement des honoraires médicaux, quand ces derniers excèdent le barème des honoraires fixés par la province, à condition que ces honoraires n'excèdent pas ceux qui seraient exigés dans la province où le souscripteur a élu domicile.

- Les lunettes dont le coût n'excède pas \$40 par personne durant toute période de 24 mois consécutifs à condition que la nécessité en soit garantie par une ordonnance médicale écrite ou une attestation sous forme de reçu d'honoraires versés à un optométriste pour un examen de la vue.

- Les appareils correcteurs de l'ouïe dont la nécessité est attestée par une ordonnance médicale et dont le coût n'excède pas \$300 au total par personne.

Ces garanties comportent une clause autorisant une déduction modeste. Cent pour cent des frais sont remboursés après la déduction des premiers \$50 pour une période de 12 mois consécutifs. Le dentiste assuré avec sa famille ne versera que l'équivalent de la valeur de deux déductions individuelles (\$100) pour une période de 12 mois consécutifs, quels que soient le nombre ou la somme des réclamations.

Il est réconfortant de constater que malgré le montant de \$50 déductible, les garanties ne com-

portent aucune restriction sur la somme totale des indemnités réclamées.

Tous les dentistes exerçant leur profession remplissent les conditions requises pour se prévaloir du programme ADC/Croix-Bleue. Les garanties du programme peuvent aussi s'étendre à tous les enfants à charge (jusqu'à l'âge de 25 ans) et aux épouses. Tous les employés des dentistes peuvent aussi se prévaloir des mêmes avantages. Contrairement à plusieurs programmes de santé, celui-ci n'augmente pas de coût quand le dentiste atteint l'âge de 65 ans. De plus, il ne comporte aucune limite d'âge.

L'un des avantages additionnels et plutôt inusité consiste à garantir les mêmes bénéfices aux épouses et aux enfants à charge, même après le décès éventuel du dentiste. Cet avantage est particulièrement réconfortant pour le dentiste au début ou au milieu de la période au cours de laquelle il exerce sa profession, quand ce dernier établit le portefeuille des valeurs de protection qu'il détient. La vieille complainte du professionnel indépendant qui déclarait ne pas avoir le moyen d'être malade est aujourd'hui désuète.

Le coût annuel du programme de protection garanti par la Croix-Bleue ne s'élève qu'à \$107.40 pour une famille et à \$47.40 pour un dentiste célibataire.

Dans l'Ontario, les redevances sont moins élevées puisque les soins hospitaliers semi-privés sont assumés par le programme d'assurance hospitalisation obligatoire, en vertu des dispositions de la loi provinciale. Les redevances du programme familial CDSPI/Croix-Bleue de l'Ontario se chiffrent à \$83.40 par année alors que le programme simple s'élève à \$35.40.

Dans les classeurs du Programme de services dentaires Inc (CDSPI), plusieurs cas de dentistes témoignent que ces derniers se considèrent fort prévoyants d'avoir profité du Programme étendu des services de santé intégré dans le programme de la Croix-Bleue. Dans les circonstances, le mot "étendu" constitue la clé de la situation. Les cas de maladie se prolongeant au delà d'un an sont fréquents. Un dentiste a même affirmé: "sans la Croix-Bleue j'aurais été dans la misère noire. Les frais additionnels qu'il me fallait assumer pour les services s'élevaient à plus de \$3,000 pour une seule année et la Croix-Bleue les a réglés dans la proportion de près de 90 p.c."

Toute demande de souscription concernant ce programme garantissant les frais des soins de santé doit être adressée directement au Programme canadien des services dentaires Inc, 230 rue St-Georges, Toronto.



# Federal income tax returns by dentists

*This article was prepared by Thorne Gunn & Company, Chartered Accountants, to assist dentists in the preparation of their annual income tax returns.*

## Income

Starting in 1972 taxpayers in a profession must compute their income on an accrual basis. The accrual method requires taxpayers to include in income at the end of each taxation year accounts receivable and work in progress and to deduct amounts in respect of accounts payable. The taxpayer may elect to exclude work in progress and therefore, if he does so elect, he need not keep detailed records of this item. If this election is made, it is binding for all subsequent years and can only be revoked with the concurrence of the Minister of National Revenue.

It is necessary, therefore, to maintain a record of all fees billed. An amount becomes receivable on the earliest of:

1. The day on which the account is rendered,
2. The day upon which the account would have been rendered had there been no undue delay and
3. The day upon which the taxpayer was paid for the services.

A taxpayer who has professional income is required to include his 1971 accounts receivable in his income for 1972. He may, however, deduct from this amount a "reserve" in accordance with prescribed limits. This reserve will depend on the taxpayer's "investment interest" in the professional business and will enable most taxpayers to defer taxation on these 1971 receivables. The 1972 investment interest of a proprietor (as opposed to a partner) in a professional business is defined as the amount of his accounts receivable at the end of the 1972 fiscal year, less any allowance for doubtful accounts. For each year subsequent to 1972, the taxpayer will include the prior year's reserve in income and calculate the appropriate new reserve, being the accounts receivable at the end of that year less allowance for doubtful accounts. Special rules

apply to the calculation of a partner's "investment interest" and any professional practising in a partnership should probably obtain professional advice.

## Capital gains

The Income Tax Act provides that, after 1971, taxpayers must include in income the excess of taxable capital gains over allowable capital losses. Taxable capital gains are defined as one-half of capital gains from the disposition of property. An allowable capital loss is one-half of a capital loss. Ordinarily, a dentist's residence is exempt from tax on any gain on disposition. Where the residence is also being used for business purposes (see item (g) under Expenses), the taxpayer can be subject to tax on a capital gain on disposition and a recapture of depreciation claimed.

There should be maintained by every member of the dental profession an accurate record of income billed and received from his profession (fees) and from other sources (investments, real estate rentals, etc). The record should be clear and capable of being rapidly checked against the return filed. Records should be maintained in books kept for the purpose which should be retained until written permission for their disposal is obtained from the Minister of National Revenue.

## Expenses

Amounts to be deducted from income are expenses paid and accrued in the year, which includes accounts payable at the end of the year. The accrual method of reporting income takes into income all amounts receivable at the end of the year but allows a deduction for all amounts payable. Records of expenses as explained below should therefore be updated to include all amounts payable though not paid at the end of the year. Accounts payable owing at the end of 1971, which were not expensed in that or a prior year, may be deducted in full in computing income for 1972.



Under the heading of expenses the following accounts should be maintained and records kept available for checking purposes in support of charges made:

- (a) Dental and like supplies.
- (b) Office help, nurse, bookkeeper, laundry and malpractice insurance premiums:

Amounts of salaries and wages paid should be reported on Forms T4-T4A Summary and T4 Supplementary, obtainable from your District Taxation Office. (The Income Tax Act does not allow as a deduction a salary paid by a husband to a wife or vice versa. Such amount, if paid, is to be added back to income of the payer.)

- (c) Telephone expenses incurred in connection with professional practice.

- (d) Assistant's fees:  
The names and addresses of the assistants to whom fees are paid, and amounts paid, should be furnished on or before the last day of February in each year on Forms T4-T4A Summary and T4A Supplementary. (Do not confuse with individual return of income, Form T1, to be filed on or before April 30 in each year.)

- (e) Rentals paid:  
The name and address of the owner (preferably) or agent of the rented premises should be furnished. (See (g) Non-resident tax must be withheld at source from rent paid to non-resident owners of rented premises.)

- (f) Postage and stationery.
- (g) Proportional expenses of dentists practising from their residences — (See also capital gains above):

1. Owned by the dentist: Where a dentist practises from a house he owns and as well resides in, a proportionate allowance of house expenses will be given for the laboratory, office and waiting room space, on the basis that this space bears to the total space of the residence. The charges cover taxes, light, heat, insurance, repairs and interest on mortgage. (Name and address of mortgagee to be stated.) Note: For depreciation see item (m).

2. Rented by the dentist: Rent and other house expenses paid by the dentist will be apportioned in the same manner as that described above.

- (h) Sundry expenses (not otherwise classified):  
The expenses charged to this account should be capable of analysis and supported by records.

Claims for charitable donations will be allowed up to 20 per cent of net income from all sources upon submission of receipts to your District Taxation Office. Charitable donations made through professional practice should be excluded from professional expenses and claimed as a deduction from income generally, along with any donations made otherwise.

The annual dues paid to governing bodies under which authority to practise is issued and membership association fees, to be recorded on the return, will be admitted as a charge.

For 1965 and subsequent years, tuition fees paid to an educational institution in Canada for a post-graduate course are an allowable deduction, but no deduction may be made in respect of travelling or living expenses incurred in connection with the taking of such a course.

- (i) Interest paid on borrowed money may be charged against professional income if the borrowing was for professional purposes. If the money was borrowed to acquire investments, the interest is chargeable against the investment income. If the loan was for personal purposes, no deduction from income will be allowed for the interest paid thereon.

- (j) Business tax will be allowed as an expense but income taxes will not be allowed.

- (k) Automobile expenses:  
Taxi fares and automobile expenses incurred in earning the income from the dental practice will be allowed when the dentist must visit the patients at their homes. The cost of transportation between the dentist's home and his office, however, is not an allowable deduction from income. (The manner of calculating claims for automobile expenses is described in Information Bulletin No. 28 issued by the Taxation Division of the Department of National Revenue and reprinted in part on pages 209-210 of the March 1965 issue of the Journal.)

- (l) Social club dues made or incurred after 1971 are no longer allowable as a deduction. "Social club dues" means a membership or initiation fee in any club, the main purpose of which is to provide dining, recreational or sporting facilities for its members. Also disallowed is an outlay or expense made or incurred by the taxpayer after 1971 for the use or maintenance of property that is a yacht, a camp, a lodge or a golf course.

- (m) Capital cost allowance (depreciation):  
The method of computing capital cost allowance for tax purposes is essentially the same as that used last year. A limitation introduced in 1972 restricts the claiming of capital cost allowance on rental buildings to the extent of rental income only.

For further information on this subject you may refer to the Regulations or you may consult your District Taxation Office.

### Convention expenses

Convention expenses are allowable to an individual practising a profession, but the allowance is restricted to the expense of attending no more than



two conventions in a taxation year. The taxpayer's attendance at the convention must have been for professional reasons. The expenses to be allowed must be reasonable and the taxpayer should show:

1. The dates on or between which the convention was held and the location thereof;
2. The number of days he was present at the convention, supported by a certificate of attendance from the sponsoring organization; and
3. The expenses incurred, segregating (a) transportation expenses, (b) meals, and (c) hotel expenses, for which at least vouchers should be obtained and kept available for inspection.

All expenses of a personal nature including those attributable to the fact that the taxpayer's wife (or husband) accompanied him to the convention must be excluded from the foregoing. No expenses for attending a convention are allowable as a deduction from salary income.

The location of a convention must be consistent with the territorial scope of that organization. Expenses incurred in attending a convention sponsored by a Canadian organization that is held outside those geographical limits will not be deductible in computing income. For this purpose, a convention held during an ocean cruise will be viewed as being held outside Canada.

### Registered retirement savings plans

The amount that is deductible in respect of contributions to a retirement savings plan is limited:

(a) In the case of an employee receiving a salary who is covered by a registered pension fund or plan (whether or not he contributes to the pension fund) to \$2,500 or 20 per cent of his earned income, minus the amount, if any, he is allowed to deduct from income for his contribution to the pension fund.

(b) In other cases, to the lesser of \$4,000 or 20 per cent of his earned income. "Earned income" usually consists of income received as salary (before any pension deductions) or income from carrying on a business or profession, plus net rental income.

The amounts deductible are those paid in 1972 and within 60 days after the end of the year. A payment made in January or February 1972 cannot be claimed in 1972 if it could have been deducted in 1971.

Individuals inquiring whether a proposed or existing plan is acceptable should usually obtain that information from the corporation offering the

plan as it will normally be the corporation's responsibility to explain the plan and get it registered.

Dentists who have applied for membership in the Canadian Dental Association Retirement Savings Plan prior to February 28, 1973 may be assured that their names are registered as participants in a registered retirement savings plan and that their contributions are deductible for the taxation year 1972. The closing date for applications and contributions applicable to 1972 is February 28, 1973.

A personal statement of account and a receipt showing the amount of contributions will be mailed in March, 1973 to each participant to support claims made for deductions in 1972 income tax returns.

Applications for membership in CDARSP received after February 28, 1973 will entitle participants to tax deferment for 1973.

### Payment of tax

Individuals whose income is more than 25 per cent derived from sources other than salary or wages are required to pay the tax for each year by quarterly instalments during such year on the following dates, March 31, June 30, September 30 and December 31.

### Dentists under salary contract

The Income Tax Act provides for the deduction of certain expenses from salary income.

The allowable expenses include travelling expenses, annual professional membership dues, office rent, salary to an assistant or substitute and supplies consumed directly in the performance of the duties of employment.

Also allowable in 1972 is an employment expense deduction, equal to the lesser of \$150 and 3 per cent of income from employment.

Certain conditions are attached to the allowance of the expenses. Without trying to recite the exact provisions of the law the main points are:

(a) That the expenses must have been incurred in the performance of the duties of the office or employment.

(b) That the employee is required under the contract of employment to pay the expenses.

(c) To claim travelling expenses the employee must be ordinarily required to carry on the duties of his employment away from his employer's place of business. Travelling between the dentist's home and his office is not included.

*(Continued on page 452)*



# Epidemiology of malocclusion in 12 year old Winnipeg school children

*Two indices — Draker's Handicapping Labiolingual Deviation Index (HLD) and Grainger's Treatment Priority Index (TPI) — were used in conjunction with a quantitative photo analysis of facial aesthetics to determine the incidence and severity of malocclusion in a random sample of 12 year old Winnipeg school children and assess their treatment requirements. The TPI used in conjunction with the Photo Index proved more discriminating than the HLD. Eighty-five per cent of the children examined had some form of malocclusion. No relationship was found between socio-economic level and the incidence of malocclusion but there was a definite correlation between socio-economic level and orthodontic treatment, with a larger number of children in the higher socio-economic group receiving treatment.*

*Deux indices — l'indice de déviation labio-linguale handicapante de Draker (HLD) et l'indice de traitement prioritaire de Grainger (TPI) — furent utilisés conjointement avec les ressources de l'analyse quantitative photographique de l'esthétique faciale pour déterminer la prévalence et la gravité des malocclusions ainsi que les traitements requis dans un échantillon choisi au hasard chez les écoliers de 12 ans de Winnipeg. Le TPI utilisé conjointement avec l'indice photographique s'est avéré supérieur comme mesure de différenciation au HLD. Quarante-vingt-cinq pour cent des enfants examinés présentaient une forme quelconque de malocclusion. Il fut impossible d'établir de relation entre le niveau socio-économique et la prévalence des malocclusions. L'on a toutefois constaté une nette corrélation entre le niveau socio-économique et les traitements orthodontiques. En effet, un nombre plus élevé d'enfants des niveaux socio-économiques supérieurs bénéficiaient de traitements.*

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The recent introduction of government sponsored health services in Canada may eventually extend to the field of dental care. In view of the limited professional personnel available to meet the increasing demands for orthodontic treatment, it will be necessary to assess the demand for service and to establish treatment priorities within a given population. Such considerations have prompted an increasing interest in quantitative methods of determining the prevalence and severity of dentofacial disharmonies.

In the past, investigators<sup>1-3</sup> have used numerous systems to classify the various forms of malocclusion present in the human population. The most widely used classification was introduced by Angle<sup>4</sup> in 1899. However, Angle's classification is subjective and confusing.<sup>5</sup> In addition, this classification does not provide information concerning the severity of the condition or the urgency of treatment. Other investigators<sup>6-9</sup> have devised methods for obtaining a quantitative index of malocclusion in order to assess these defects in an objective manner. Few papers are available regarding the comparative agreement of these indices.<sup>10</sup> So far, no quantitative assessment of facial aesthetics is available from any index.

The present investigation was undertaken in a random sample of Winnipeg school children to (1) measure the severity of malocclusion, (2) evaluate treatment requirements, (3) examine several methods of establishing treatment priority, and (4) design an objective method of assessing facial harmony.



## Material and methods

The sample was composed of 444 12 year old Caucasian school children, representing approximately 10 per cent of the grade 6 school population in Winnipeg. The children were selected at random from private and public schools, and from dental welfare clinics. For purposes of this study, the schools were considered representative of high, medium and low socio-economic strata. Each child included in the study had reached the stage of a complete permanent dentition (third molars excluded). The children were examined individually so that their answers to subjective questions would not be influenced by other children.

The instruments used for examination consisted of a mouth mirror, a dental explorer, a plastic millimetre ruler, a Boley gauge, a 35 mm camera (Pentax Spotmatic, ASHAI Manufacturing Co, Japan), and a plastic measuring instrument designed by Van Kirk and Pennel (1959). The latter was employed to measure individual tooth displacements and rotations.

The survey was conducted during the six month period January to June, 1970. A survey sheet was completed for each child at the time of examination. This included the following questions pertaining to the general dental care and motivation of the children: whether they (1) had a family dentist, (2) were receiving orthodontic treatment or had it suggested, (3) felt their teeth were straight, and (4) would wear "braces" to have their teeth straightened. Additional information required to calculate the indices of malocclusion was also included.

The total sample of 444 children was subdivided by sex, occlusion and socio-economic level for the purpose of statistical analysis. No child had an ideal occlusion. Those whose tooth displacement was so slight as to require no treatment were considered to have acceptable occlusion.

Two indices were employed to assess the severity of malocclusion quantitatively: the Handicapping Labiolingual Deviation Index (HLD) developed by Draker<sup>6</sup> in 1958 and the Treatment Priority Index (TPI) introduced by Grainger<sup>7</sup> in 1966. The HLD index was employed by Fulton and Hughes<sup>11</sup> and Carlos and Ast<sup>12</sup> while the TPI has been used by MacKay.<sup>13</sup>

The HLD index assesses the severity of malocclusion by considering the degree of overjet or mandibular protrusion, overbite or open bite, labiolingual spread, and the presence of clefts or severe traumatic deviations. These measurements, modified by weighting factors, are totalled to yield the index score ranging between 0 and 15 plus.

The TPI is based on quantitative measurement of the following variables: overjet or underjet, over-

bite or open bite, number of teeth rotated or displaced, posterior crossbite, and congenitally missing incisors. The contribution which each of these characteristics makes to the index score is dependent upon the anteroposterior relationship of the first permanent molar.

HLD and TPI scores were calculated for each of the 444 children using specially designed computer programs. Each of the two sets of index scores was independently subjected to a three-factor factorial analysis of variance to investigate the effect of sex, occlusion and socio-economic level and their interactions. In addition, the relationship between these indices was examined by tabulation and by a linear correlation.

For each of 290 children selected at random, an 8 by 10 inch profile, black and white photograph was printed on matte paper. Prior to this, the soft tissue landmarks, nasion and orbitale, were marked on each child's face. The child's teeth were placed in centric occlusion and, in the absence of a headholder or ear rods, the head posture was corrected to minimize distortion due to head positioning.

To quantitatively analyse the lateral photographs, 11 facial soft tissue landmarks were selected and 13 angular measurements made on each print. In addition, lip posture was noted as being open or closed. Facial harmony was then assessed by four orthodontists who independently judged the photographs of the 290 children. In response to the following question, "From an orthodontic point of view do the soft tissue structures suggest any skeletal or dental dysplasia?", the examiners scored a child as having good (score 0) or poor (score 1) facial harmony. The four scores for each child were added to yield a total photo score (TPS). This was used as the dependent variable in a multiple regression analysis to determine the contribution of each of the 14 photographic measurements to facial harmony.

It was found that only four of the 14 measurements bore a significant relation to the total photo score. These were then used as independent variables in a second multiple regression analysis. The four variables retained (Fig 1) were: the facial angle (formed between a line joining point T, the tragus of the ear, and point P, the midpoint of the facial plane N-Pg), angle ANPg, the nasolabial angle and lip separation. The first three were measured in degrees while the fourth, the lip posture, was scored as 0 for closed and 1 for open lip posture.

The soft tissue landmarks necessary to define these angles are as follows:

Nasion (N): the most posterior point at the root of the nose in the median sagittal plane.

Pronasale (Prn): the most anterior point of the nose in the median sagittal plane.



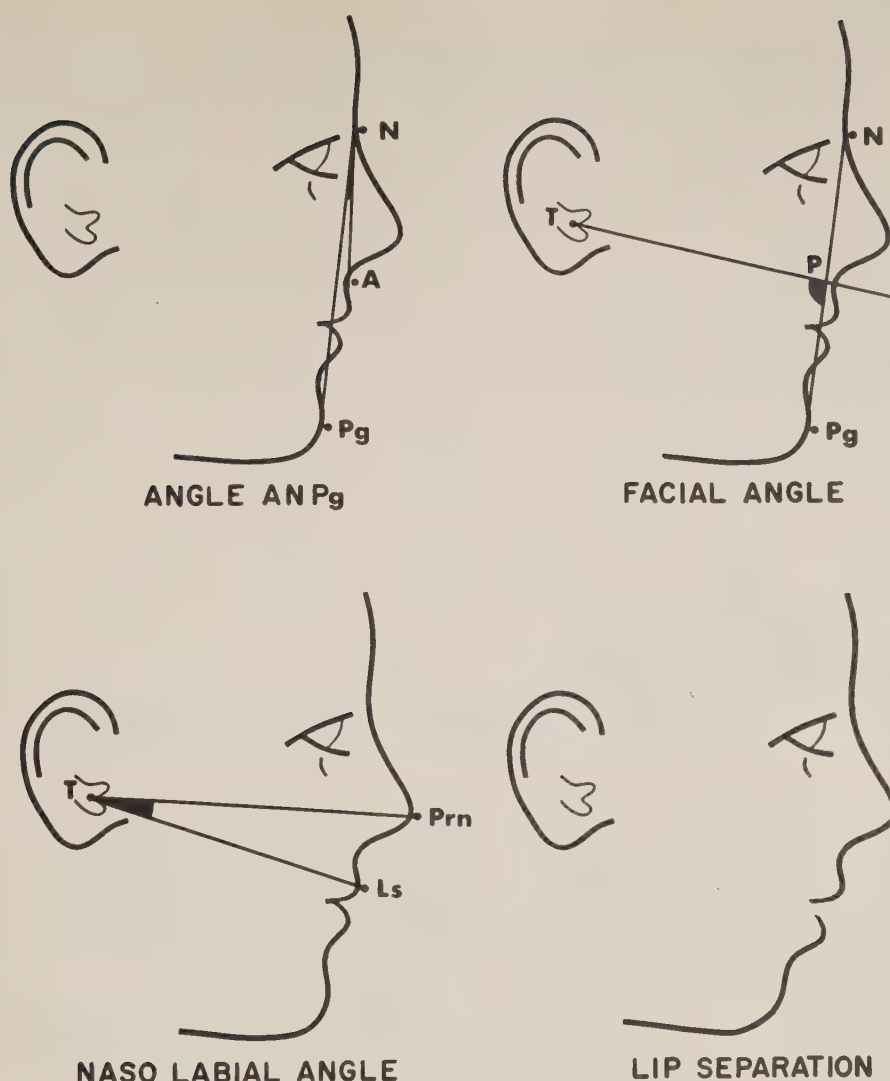


Fig 1 Soft tissue landmarks employed and variables considered in the development of the Photographic Index.

Labrale superius (Ls): the point at the superior margin of the upper membranous lip in the median sagittal plane.

Pogonion (Pg): the most anterior prominent point on the chin in the median sagittal plane.

Tragus (T): the tip of the soft tissue, tongue-like projection of the auricle in front of the opening of the external auditory meatus.

Point (P): the geometric midpoint of N-Pg.

In addition to the multiple regression analysis, the total photo scores were subjected to an analysis of variance similar to that employed for the two indices of malocclusion. The relationship between the photo scores and each of the TPI and HLD scores was examined by correlation methods.

## Results

The results of the dental care variables are presented in Table 1 for the total sample and for

each of the three classifications studied, namely, sex, occlusion and socio-economic level. Orthodontic treatment was suggested for 12 per cent of the children; however, only 6.3 per cent were actually receiving it. Of interest was the fact that 5.3 per cent had lost one or more mandibular first permanent molars, whereas only 1.8 per cent had lost one or more maxillary first permanent molars.

Except for the children missing mandibular first permanent molars and those who would wear braces, there were no significant differences between the sexes in the variables examined. Only 1 per cent of the males were missing mandibular first permanent molars, compared to 8.9 per cent of the females. In response to the question, "Would you wear braces?", girls indicated a greater willingness than did boys.

On the basis of occlusion, significantly more children in the acceptable occlusion group stated they attended a dentist regularly. None of the



|                                   | Total sample<br>(N=444) | Sex             |                   | X <sup>2</sup> | Occlusion            |                         |                | Socio-economic level |                   |               |                |
|-----------------------------------|-------------------------|-----------------|-------------------|----------------|----------------------|-------------------------|----------------|----------------------|-------------------|---------------|----------------|
|                                   |                         | Male<br>(N=204) | Female<br>(N=240) |                | Acceptable<br>(N=63) | Malocclusion<br>(N=381) | X <sup>2</sup> | High<br>(N=55)       | Medium<br>(N=341) | Low<br>(N=75) | X <sup>2</sup> |
| Have a dentist                    | 69.7                    | 67.8            | 71.5              |                | 84.0                 | 67.4                    | *              | 94.5                 | 65.3              | 100.0         | **             |
| Have an orthodontist              | 6.3                     | 4.9             | 7.5               |                | 0                    | 7.4                     | **             | 18.2                 | 5.4               | 1.4           | **             |
| Had treatment suggested           | 12.0                    | 10.3            | 13.4              |                | 0                    | 13.2                    |                | 31.0                 | 10.2              | 5.3           | **             |
| Think their teeth<br>are straight | 62.6                    | 67.9            | 58.1              |                | 92.7                 | 56.9                    | **             | 48.9                 | 64.3              | 66.7          | *              |
| Would wear braces                 | 35.7                    | 29.8            | 40.3              | *              | 7.3                  | 41.6                    | **             | 54.8                 | 32.9              | 32.8          | †              |
| Missing first permanent molars    |                         |                 |                   |                |                      |                         |                |                      |                   |               |                |
| Maxillary                         | 1.8                     | 2.0             | 1.6               |                | 0                    | 2.18                    |                | 0                    | 1.4               | 5.4           | †              |
| Mandibular                        | 5.3                     | 1.0             | 8.9               | **             | 0                    | 6.20                    | *              | 0                    | 5.3               | 8.4           | *              |

\* Contingency chi square significant at the 5 per cent level

† Contingency chi square significant at the 1 per cent level

\*\* Contingency chi square significant at the 0.1 per cent level

children in this group had lost any first permanent molars. Children with acceptable occlusion were quite aware that they had reasonably straight teeth and, as expected, fewer of them accepted the idea of wearing braces. Of the 381 children classed as having a malocclusion, only 7.4 per cent were receiving orthodontic treatment.

The general trend indicates that the higher the socio-economic level, the more likely a child is to have an orthodontist and to have had treatment suggested, and the less likely is he to have first permanent molars extracted. A significantly greater percentage of children in the upper socio-economic group indicated that they would wear braces. On the other hand, more children in the lower and medium groups thought they had straight teeth.

The distribution of children according to the Angle classification is presented in Table 2 for the total sample, for each of the sexes, and for the three socio-economic levels. Only 14.2 per cent of the children examined were classified as having acceptable occlusion. There was an almost equal incidence of Class I (36 per cent) and Class II (40 per cent) malocclusion, while Class III accounted for only 3.8 per cent. In several instances we could not determine the Angle classification either because of a mutilated dentition or because the child was undergoing orthodontic treatment and pretreatment records were not available.

The means and standard errors for the Handicapping Labiolingual Deviation Index, Treatment Priority Index, and Total Photo Scores are presented

together with the significant effects revealed by the analysis of variance in Table 3. Since none of the interactions examined were statistically significant, only main effects are presented. As expected, there were significant differences in the index scores between the acceptable and malocclusion groups with all values for the acceptable occlusion group being lower. Also, both the HLD and Total Photo Scores were significantly higher for males than females, whereas the TPI scores showed no significant differences. None of the differences among the three socio-economic levels were significant.

An attempt was made to develop a photographic index from the available data. The four facial measurements (Fig 1) which bore a significant relation to the total photo scores were used as independent variables in a second multiple regression analysis. The analysis yielded a multiple correlation coefficient of 0.55. The prediction formula for the photographic index (PI) was found to be  $PI = 7.6 - 0.07P_1 + 0.14P_2 - 0.06P_3 + 1.5P_4$ , where PI is the calculated photographic index and  $P_1$ ,  $P_2$  and  $P_3$  are the facial angle, angle ANPg, nasolabial angle, measured in degrees, and  $P_4$  represents lip separation, scored as 0 or 1 for closed and open lip respectively.

## Discussion

The data gathered in this investigation demonstrate that approximately 85 per cent of the



Table 2

Number and per cent distribution of children according to Angle's classification of malocclusion

|                                  | Total sample |          | Sex  |          |        |          | Socio economic level |          |        |          |     |          |
|----------------------------------|--------------|----------|------|----------|--------|----------|----------------------|----------|--------|----------|-----|----------|
|                                  |              |          | Male |          | Female |          | High                 |          | Medium |          | Low |          |
|                                  | No.          | Per cent | No.  | Per cent | No.    | Per cent | No.                  | Per cent | No.    | Per cent | No. | Per cent |
| Class I acceptable occlusion     | 63           | 14.2     | 22   | 10.8     | 41     | 17.1     | 7                    | 12.7     | 44     | 14.1     | 12  | 16.0     |
| Class I malocclusion             | 160          | 36.0     | 81   | 39.7     | 79     | 32.9     | 18                   | 32.8     | 112    | 35.6     | 30  | 40.0     |
| Class II Division 1 malocclusion | 180          | 40.4     | 86   | 42.1     | 94     | 39.2     | 22                   | 40.0     | 130    | 40.7     | 28  | 37.4     |
| Class II Division 2 malocclusion | 18           | 4.2      | 5    | 2.5      | 13     | 5.4      | 2                    | 3.6      | 14     | 5.2      | 2   | 2.6      |
| Class III malocclusion           | 15           | 3.8      | 7    | 3.4      | 8      | 3.3      | 1                    | 1.8      | 12     | 3.8      | 2   | 2.7      |
| Non-classifiable malocclusion    | 8            | 1.4      | 3    | 1.5      | 5      | 2.1      | 5                    | 9.1      | 2      | .6       | 2   | 1.3      |
| Total                            | 444          | 100.0    | 204  | 100.0    | 240    | 100.0    | 55                   | 100.0    | 314    | 100.0    | 76  | 100.0    |

Means, standard errors and significant main effects revealed by the analysis of variance for the HLD, TPI and total photo scores

Table 3

|                      |              | HLD score |       | TPI score |       | Total photo score |       |
|----------------------|--------------|-----------|-------|-----------|-------|-------------------|-------|
|                      |              | Mean      | S.E.  | Mean      | S.E.  | Mean              | S.E.  |
| Total sample         |              | 10.21     | 0.20  | 6.39      | 0.19  | 1.96              | 0.08  |
| Sex                  | Male         | 10.57     | 0.30* | 6.55      | 0.29  | 2.07              | 0.12* |
|                      | Female       | 9.90      | 0.28* | 6.25      | 0.26  | 1.85              | 0.11* |
| Occlusion            | Acceptable   | 5.95      | 0.55† | 1.26      | 0.51† | .74               | 0.18† |
|                      | Malocclusion | 10.89     | 0.22† | 7.24      | 0.21† | 2.25              | 0.09† |
| Socio-economic level | High         | 9.84      | 0.60  | 6.29      | 0.59  | 1.97              | 0.24  |
|                      | Medium       | 10.37     | 0.24  | 6.49      | 0.23  | 1.75              | 0.09  |
|                      | Low          | 9.78      | 0.49  | 6.00      | 0.47  | 2.02              | 0.19  |

\* Significant at the 5 per cent level

† Significant at the 0.1 per cent level

children surveyed exhibited some form of malocclusion. Only 7.4 per cent of the children with malocclusion were receiving treatment however. This suggests an acute orthodontic treatment need in this sample.

In spite of the absence of significant differences in the incidence or severity of malocclusion (as judged by the HLD and TPI indices) in the three socio-economic groups, the percentage of children with malocclusion who had received treatment was

significantly greater in the upper group (20.8 per cent) in the medium (6.3 per cent) and low (1.6 per cent). This demonstrates that financial considerations, and not severity of malocclusion, are paramount in determining whether or not a child receives orthodontic treatment.

Since Angle introduced his classification of malocclusion in 1899, there have been many attempts<sup>13-17</sup> to determine the prevalence of each of the three classes of malocclusion and its overall



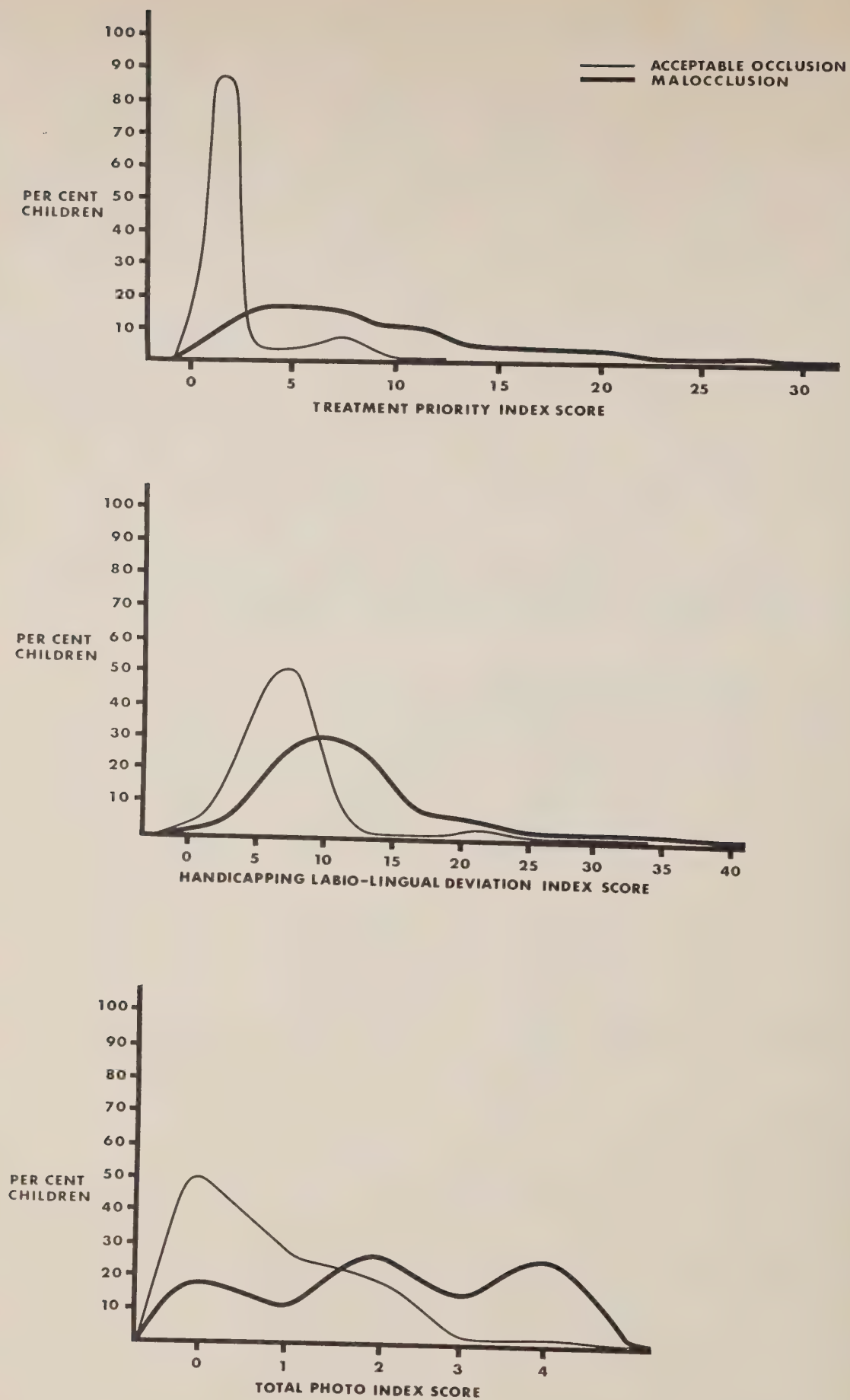


Fig 2 Per cent frequency distribution of the acceptable and malocclusion groups of children according to the three indices studied.



Distribution of children according to the treatment priority and handicapping labiolingual deviation index scores

Table 4

| Handicapping<br>Labiolingual<br>Deviation Index | Treatment Priority Index           |                                 |                                 |
|-------------------------------------------------|------------------------------------|---------------------------------|---------------------------------|
|                                                 | Treatment needs<br>slight<br>(0-6) | Treatment<br>desirable<br>(7-9) | Treatment<br>mandatory<br>(10+) |
| Non-handicapping<br>malocclusion<br>(0-11)      | 221*                               | 32†                             | 22**                            |
| "Grey area" treatment<br>desirable<br>(12-14)   | 24†                                | 39*                             | 34†                             |
| Handicapping malocclusion<br>(15+)              | 6**                                | 17†                             | 32*                             |

\* Complete agreement between indices  
† Moderate agreement between indices  
\*\* Complete disagreement between indices

incidence. However, these investigations have yielded large differences in the prevalence of the various Angle classes<sup>14, 18-20</sup> and larger disparities in the overall incidence of malocclusion<sup>13, 16, 20</sup> ranging from a high of 95.2 per cent<sup>17</sup> to a low of 42.2 per cent.<sup>15</sup> In the present study, 85.8 per cent of the 444 children examined had some form of malocclusion. Massler and Frankel<sup>14</sup> have attributed this lack of agreement to several factors such as the varied criteria used to assess normal occlusion, the wide range of age groups studied and reported together, and the small number of individuals examined in some investigations. Horowitz<sup>5</sup> reported that the disparity in results of various studies employing Angle's classification indicate either geographic variation in the prevalence of malocclusion or that this classification is "too subjective and confusing" to be used in the assessment of malocclusion. In addition, it should be noted that Angle's classification considers malocclusion as a discrete rather than a continuous entity and is therefore insensitive to the degree of severity. For these reasons and also because of the desire to statistically analyse and compare epidemiological data, there has been a search for an index which would assess dentofacial disorders in an objective and quantitative manner. This has led to the introduction of several indices of malocclusion. To date, however, no one has suggested that a quantitative analysis of facial aesthetics be used in conjunction with an index of malocclusion.

In the present investigation, the occlusion of each child was assessed by both the HLD and TPI indices. The facial aesthetics of 290 children were evaluated

by four orthodontists, and a quantitative analysis was carried out on each photograph. This led to the development of a photographic index which would seem to be of value and should be used in conjunction with an index of malocclusion to establish treatment priorities.

Ideally, an index of malocclusion should quantitatively describe the severity of the condition and numerically rank the children in order that a certain percentage of them, based on the availability of funds, treatment facilities and treatment personnel, may be treated. Since both the TPI and HLD indices are currently in use, it is also important to consider the differences in rank assigned children by each of these indices.

This was examined by tabulating the results of the two indices into the groups suggested by the authors of the TPI and HLD indices (Table 4). It may be noted that both indices concurred in 68 per cent of the cases as evident in the main diagonal of Table 4. Moderate agreement, when one index placed a child in the "treatment desirable" group while the other classified him as either definitely needing or not needing treatment, occurred in 23.3 per cent of the cases. Complete disagreement between the indices arose in the 7.7 per cent of the cases who were classified as definitely not needing treatment. It was also noted that 23.5 per cent of the children had a moderate or high score on both indices, indicating that they would benefit from treatment. This is interesting since it was found that only 7.4 per cent of the children with malocclusion were receiving treatment. In all but one case, the children receiving therapy were



| Photographic index score | HLD score |       |     | TPI score |     |     |     |
|--------------------------|-----------|-------|-----|-----------|-----|-----|-----|
|                          | 0-11      | 12-14 | 15+ | 0-3       | 4-6 | 7-9 | 10+ |
| 0-1                      | 87        | 13    | 7   | 59        | 24  | 16  | 10  |
| 2                        | 47        | 14    | 14  | 18        | 22  | 19  | 16  |
| 3-4                      | 48        | 37    | 23  | 25        | 18  | 28  | 35  |

being treated by registered orthodontists and not by general practitioners.

The coefficient of correlation between the TPI and HLD indices was 0.57, a highly significant but somewhat low correlation, indicating that to a great degree these two indices do not measure the same aspects of malocclusion. Both indices assess the degree of overjet and overbite; however, the HLD index is primarily concerned with the position of the anterior teeth, whereas the TPI index also includes an assessment of congenitally missing incisors and posterior crossbite. Neither included an evaluation of facial harmony and balance.

In the present study, the assessment of facial aesthetics was made by totalling the photo scores which each of the orthodontists assigned the 290 photographs they evaluated. A total photo score of 0-1 was interpreted as good facial aesthetics while a score of 2 was average and a score of 3-4 was considered representative of poor facial aesthetics. It must be noted that the assessment of facial harmony is very subjective. The opinions of the four orthodontists must of necessity be biased.

It was found that the total photo score could be predicted from four facial measurements readily determined from a lateral photograph. The predicted score may then be used as a photo index to quantitatively evaluate the degree of facial harmony. The predictability of the index was estimated by the square of the multiple correlation coefficient to be 30 per cent. This meant that 30 per cent of the total variability in the observed total photo score was due to the four variables considered, namely, facial angle, the ANPg angle, the nasolabial angle and the lip posture. The remainder of the variability was due to factors which were either not measured or cannot be measured, for example, the contour of the nose and the redundancy or insufficiency of the lip.

The correlation coefficients for the total photo scores and each of the two indices of malocclusion were calculated. These were found to be 0.33 and

0.38 for the TPI and HLD indices respectively. The fact that the correlation between the two indices of malocclusion and the total photo scores did not exceed 0.38 suggests that the photo index was measuring factors not included in either of the indices of malocclusion. This suggests the need to incorporate an evaluation of facial balance and harmony into an index of malocclusion.

The use of the photo index in conjunction with the TPI and HLD indices of malocclusion is presented in Table 5. For example, although 44 children were classified by the HLD index as having a handicapping malocclusion (index score 15+) only 23 of these children were assessed by the photo index as having poor facial features. As facial appearance is also most important, it is these 23 children, therefore, who should be treated first in the group exhibiting handicapping malocclusions.

Another aspect of the photo index is that it could be used to select those children who, for various reasons, have low malocclusion index scores but would greatly benefit from treatment. A good example of this would be a bimaxillary protrusion where no local occlusal disharmony exists but where facial aesthetics are poor.

Since it is not always possible to use two indices of malocclusion, it was desirable to determine which of the HLD or TPI indices should be used in conjunction with an index of facial aesthetics. To determine this, it was necessary to investigate the ability of each index to discriminate between the acceptable and malocclusion groups of children. A comparison of the per cent frequency distribution between the two groups (according to each index) is presented in Figure 2.

It is noted that the TPI is the most discriminating index, followed by the HLD and PI. Since the latter was designed to evaluate facial harmony and not occlusion, the results suggest that the Treatment Priority Index is the better one to use in combination with the photo index.



Due to the inexactitude of the indices of malocclusion and the subjectivity involved in the photo analysis, it would be prudent in future studies to recognize the views of patients, parents and the public at large to a greater extent.

## Summary and conclusions

An investigation was conducted to determine the quantitative incidence and severity of malocclusion in a random sample of 12 year old Winnipeg school children. On the basis of statistical analyses of the data gathered, the following conclusions were drawn:

1. Approximately 85 per cent of the children had some form of malocclusion.
2. No child had an ideal occlusion.
3. The results of the TPI and HLD indices were not strictly comparable because each seemed to measure a different aspect of malocclusion.
4. No relationship was found between socio-economic level and the incidence or severity of malocclusion.
5. A definite relationship was found between socio-economic level and orthodontic treatment. The higher the socio-economic level, the more likely the child was to have either received orthodontic treatment or at least have had it suggested.
6. A photo index was developed which, when used in conjunction with an index of malocclusion, may aid in the assessment of orthodontic treatment priorities.
7. The indices of malocclusion used in this study confirmed that approximately 23 per cent of the total sample of children had a severe malocclusion. This reflects an acute orthodontic treatment need in the population studied.

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# Milk fluoridation as a public health measure

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*The cumulated experience with fluoridated milk is reviewed. Reference is made to the absorbability of fluoride from milk. In addition, data are presented to demonstrate the degree of caries reduction obtained by consuming fluoridated milk. Finally, the use of milk as a fluoride vehicle is put into perspective with regard to its use as a public health measure.*

*L'expérience cumulative concernant la fluoruration du lait est en voie de revision. L'étude considère le degré d'absorptivité des fluorures par le lait. De plus elle présente une démonstration de l'étendue de la réduction de la carie résultant de la consommation de lait fluoré. Finalement, l'auteur évalue l'utilisation du lait comme véhicule des fluorures en rapport avec son application aux programmes de santé publique.*

There have been many reports on the efficacy of 1 ppm of fluoride in public water supplies for the prevention of dental caries. The safety of fluoridation is attested to by the fact that more than 100 million people in North America are presently consuming fluoridated water.<sup>1</sup> However, many people do not have access to piped water supplies and, consequently, alternative methods of fluoridation have been suggested. One of these methods is the addition of fluoride to milk. Furthermore, it is occasionally suggested that fluoridation of milk can

be as effective as water fluoridation and several reasons are advanced for preferring the former. This paper reviews the accumulated, reported milk fluoridation experience with regard to the prevention of dental caries.

## Review of literature

It has been shown by Ericsson<sup>2</sup> that fluoride is absorbed almost as completely from milk as from water, the percentage of fluoride absorption from either liquid being around 90 per cent. However, utilizing the isotope <sup>18</sup>F, Ericsson demonstrated that fluoride from milk is absorbed one hour later than fluoride from water, probably due to fluoride's incomplete diffusibility caused by bonding to albumens, globulins and casein.

There are two reports on milk as a fluoride vehicle, one from Switzerland<sup>3,4</sup> and one from the United States.<sup>5</sup> The results from the six year Swiss study based on 356 control and 516 test cases are shown in Table 1.

In the American study 129 school children, aged six to nine years, took part in a three-and-a-half year investigation on fluoridated milk. The group was divided into two parts: 65 children consuming fluoridated milk each school day, the remaining 64 children (control group) consuming non-fluoridated milk. At the completion of the trial, Rusoff claimed that the fluoridated group demonstrated an 80 per cent reduction in caries based on varying numbers of bicuspid and second molars (Table 2) and a 36 per cent reduction in caries in first molars.

## Discussion

The data from these studies indicate that fluoride added to milk is absorbed by the body and has a



DMFT in Swiss children after six years of consuming fluoridated milk (1 ppm) in a controlled study

Table 1

| Age group | Age when fluoridation began | Control group |                | Fluoride group |                | Per cent DMFT reduction |
|-----------|-----------------------------|---------------|----------------|----------------|----------------|-------------------------|
|           |                             | Sample size   | DMFT (average) | Sample size    | DMFT (average) |                         |
| 9         | 3.0                         | 124           | 4.52           | 160            | 3.10           | 31.4                    |
| 8         | 2.0                         | 56            | 3.25           | 154            | 2.77           | 14.8                    |
| 7         | 1.0                         | 87            | 2.68           | 92             | 2.12           | 20.9                    |
| 6         | 0.0                         | 89            | .59            | 110            | .22            | 62.7                    |

Dental caries prevalence of erupted permanent teeth (second molars, first and second bicuspid) after three and a half years of drinking fluoridated milk in Louisiana

Table 2

| Age group | Treatment | No. of children | Average No. of teeth per child | Average No. of DMFT per child | Per cent DMFT per child |
|-----------|-----------|-----------------|--------------------------------|-------------------------------|-------------------------|
| 9         | Fluoride  | 16              | 1.68                           | 0.06                          | 3.69                    |
|           | Control   | 16              | 2.25                           | 0.25                          | 11.10                   |
| 10        | Fluoride  | 16              | 4.68                           | 0.00                          | 0.00                    |
|           | Control   | 14              | 5.07                           | 0.64                          | 12.60                   |
| 11        | Fluoride  | 18              | 7.39                           | 0.33                          | 4.46                    |
|           | Control   | 19              | 7.52                           | 1.37                          | 18.20                   |
| 12        | Fluoride  | 15              | 9.07                           | 1.00                          | 11.02                   |
|           | Control   | 15              | 9.60                           | 4.67                          | 48.64                   |
| All       | Fluoride  | 65              | 5.71                           | 0.34                          | 5.95                    |
|           | Control   | 64              | 6.15                           | 1.70                          | 27.64                   |

cariostatic effect. The figures from the Swiss study seem reasonable, although it must be borne in mind that the oldest children in the study were perhaps nearing 10 years of age, at which time only 50 per cent of the permanent teeth have erupted into the oral cavity. It would be preferable to have data based on 16 and 17 year olds so that a more meaningful comparison with results from water fluoridation could be made (Fig 1).

The data from Rusoff et al<sup>5</sup> must be viewed with some caution. Not only were the sample sizes small (65 and 64), but the duration of the experiment was short — three and a half years versus 27 years for equivalent water fluoridation studies. In addition,

considerable discrepancies in first molar caries experience preceding the experiment forced the investigators to report their findings on varying numbers of selected teeth. Finally, both the number of teeth at risk (Table 2, column 4) as well as the length of the risk period were probably insufficient for some of the age groups in this study.

In general, fluoridating milk as a public health measure is subject to four criticisms, regardless of the actual fluoridating process involved:

1. Since children from the lower socio-economic groups consume the lowest amount of fresh milk, these children would benefit least, if at all, from this method of supplying fluorides.



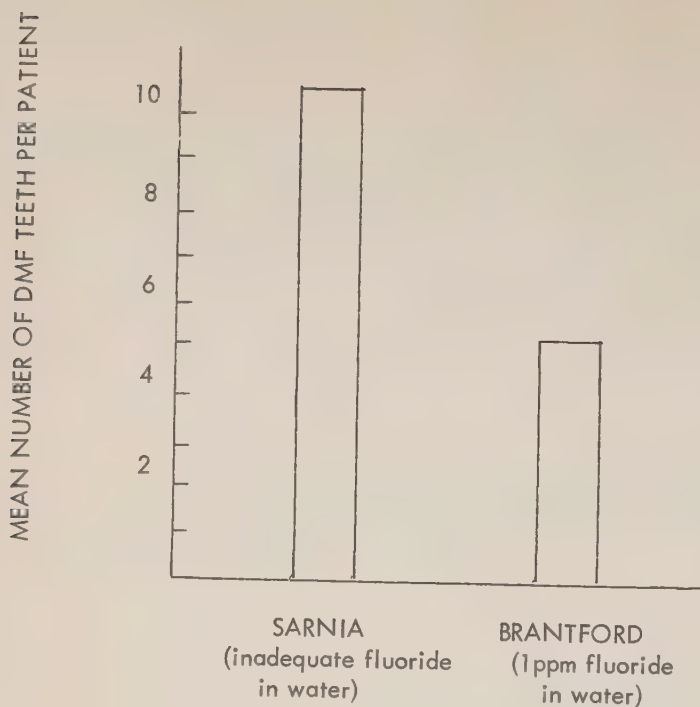


Fig 1 Caries experience in 16 and 17 year olds after 17 years of fluoridated water consumption.

2. The benefit of fluoride in milk ceases as an individual matures and changes his dietary habits to consume more coffee and less milk. If water is the vehicle, the benefit from fluoride remains provided an individual was born, raised and continues to live in a fluoridated area. Numerous studies show that adults up to the age of 60 can have a healthier dentition due to a lifelong consumption of fluoridated water.<sup>6-8</sup>

3. Unlike fluoridated water, fluoridated milk does not have a significant topical effect on the teeth. Whereas fluoride ions from water are free to attach themselves to the teeth while water passes through the mouth, the one hour delay in fluoride release from milk, as shown by Ericsson, prevents fluoride ions from entering into any reactions until the milk has passed to the stomach and small intestine. This means that, while both fluoridated water and milk will benefit developing teeth, only fluoridated water will have a significant effect on erupted teeth.

4. The use of milk as a fluoride vehicle can be costly. In 1955 the New York City Board of Health reported that the annual cost to fluoridate milk would be \$2.14 per child.<sup>9</sup> This apparently did not include the cost of the milk and, although the

figure is not comparable, it is worthwhile to observe that in 1969 it cost the citizens of Toronto only \$0.067 per capita to fluoridate the Toronto water supply.<sup>10</sup>

## Summary and conclusions

The available experience of using milk as a fluoride vehicle has been reviewed. Due to the paucity of studies, the smallness of the samples and the brevity of the experimental period, it is difficult to attach real significance to the results achieved with fluoridated milk. Its cost and unequal consumption are further factors to be considered in choosing an alternative fluoride vehicle. On the basis of the present evidence, adding fluoride to milk is an inferior method of supplying the fluoride necessary for better dental health, although this procedure may be of some benefit in areas where a central water supply is lacking.

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# The Assiniboine dental group practice

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*This article describes a dental group practice which has been established within a community health centre, and outlines the benefits, both to the community and to the dental practitioner, in this type of service.*

*Cet article décrit la pratique en groupe instaurée dans un centre communautaire de santé. L'on y souligne les avantages qu'elle apporte à la fois à la population et aux praticiens.*

At present the dental health needs of the public are in part served through dental public health programs in our schools, through federally and provincially funded health units and through general practice. Research and training should provide a team of professionals and auxiliaries who graduate with a philosophic and academic background to serve the future needs and wishes of the public. The ultimate, tangible results occur when the community residents receive diagnostic, preventive and treatment services. We feel that the Assiniboine Clinic in St. James, Manitoba, is providing an innovative and fresh approach to community dental service. We hope that its structure, goals and methods meet, through a "true group" format, the great challenge in delivery of care facing the dental profession today.

Across Canada much recent government discussion has centered around the concept of community health centres. These complexes would be centrally located in a community and offer a "one-stop" total health and social care resource. Parking and public transportation facilities are essential, and close proximity to a general hospital would be an additional advantage. The consumer would benefit measurably from this centralization and governments thereby hope to stabilize rising health costs.

The Assiniboine Clinic is located in such a centre and plays a vital role. Optometry, pharmacy, medical and dental laboratories and medical and dental group offices share the building. This project was conceived six years ago by private effort and was not government sponsored. It is interesting that although governments currently see health centres as including all of the foregoing elements and embracing in equal importance social agencies, so that the patient's health and total life style may be served with greater convenience and economy, dentistry is often omitted. A federal task force with some 20 members has recently been considering these concepts; yet it had no dental representation!

The Assiniboine Clinic, in contrast, has a building design and general atmosphere which allow dentistry to play a respected and top level part in the centre. Cooperative financial endeavour by the medical and dental founders created the clinic complex. Either group on its own would have succeeded only in a lesser degree, and their combined assets, credit ratings and expertise produced a superior centre.

The clinic has seven dentists, five hygienists, three registered dental assistants, four chairside assistants, one central supply room nurse, three appointment control nurses, four clerical staff,



three laboratory personnel and a highly qualified business manager.

Close by are 10 physicians, two pharmacists, one optometrist and their many auxiliaries. From this unit flows daily an all-embracing stream of health services.

The dentists and the physicians have admitting privileges to the adjoining hospital and many serve on its active staff.

### Goals of the clinic

The centre's main goal is to provide the dental component of the community's total health requirements. A high standard of service is assured by discriminating enrolment of well selected associates and through constant peer assessment. A further goal is to restrict the ever-increasing cost of dental services and in many cases to substantially reduce it. Citizens on welfare support programs are welcome and treated in the clinic. Each patient receives, when necessary, diagnostic and treatment planning in depth as several members of the group consult together. Therapy is spread among those members best able to, or most readily available to give a particular service. All members of the group stay abreast of advances in the profession through attendance at meetings and courses and involvement at the University of Manitoba Faculty of Dentistry and with various dental organizations.

### Changing role of the practitioner

The group was formed over six years ago and those members who came from solo practice would now find it difficult to revert to that role.

The members feel that all are performing better dental service in fewer hours per year, serving fewer patients per day — but serving more patients per year more completely. These apparent contradictions stem from the increased use of auxiliaries and the separation of therapy from diagnosis and prevention. The dentists are not burdened by time-consuming managerial duties.

Two years after commencing, difficulties were experienced because patients were not streamed through a consistently thorough, diagnostic and preventive recall program. Two hygienists, then serving five practitioners, were booked further in advance than the dentists and thus the recall system was ineffective.

A further 1,500 sq ft of space was therefore leased in another area of the clinic and equipped with reception area, darkroom and make-ready centre, and five hygienists' stations — three in

an open island multi-use single unit primarily for paedodontic recall appointments, and two cubicles for adult recall appointments. One dentist supervises the hygienists, allocates new patients and examines all the recall patients. Formerly a high production man, he was asked to divest himself of his adult patients and conduct only a paedodontic practice from one operatory in the new area. Four years' experience with this system has proved it to be highly satisfactory.

The dentists who had come from solo practice considered that in the past they had organized efficient recall systems. An attempt was made to see patients twice a year. Uncleaned teeth were visually examined and, when applicable, radiographs were taken. Treatment, if necessary, was then arranged. Before the hiring of dental hygienists it was inconvenient to give prophylaxis, scaling and topical fluoride applications to children. Formerly, approximately 100 patients a month were recalled in solo practice (five per working day). They were interspersed at low revenue between other therapy appointments. Thus, up to five interruptions per day constituted the normal recall endeavour of a practitioner.

After four years of operation of the preventive-diagnostic service (PDS) at the Assiniboine Clinic there has been a marked improvement in this endeavour. Now 150–200 patients of each dentist are processed monthly. Each patient is examined after prophylaxis, and radiographs are read immediately. If problems are detected and a patient requires treatment from his own dentist, the necessary appointments are arranged. All the dentists in the therapy area are proceeding at maximum efficiency and with minimum disruption; this allows them to provide more definitive treatment in the area for which they are trained and to see fewer patients per day; yet on the year's assessment their individual performance has become more productive.

### Prepaid preventive-diagnostic service

All parents are invited to enrol their children in the PDS department. They prepay an annual fee for the following services: two examinations a year; on each occasion the teeth are cleaned with a fluoride pumice and scaled, and topical fluoride is applied. Bitewing radiographs are taken once a year and all children receive anterior radiographs to detect any developmental anomalies. Where necessary a panoramic radiograph is taken.

The prepayment for this annual diagnostic preventive package virtually locks the child into a recall system. The centre is now feeling the impact of its success. Over 65 per cent of the children are



returning with no need for restorative treatment. The group can thus absorb more and more new patients who can be treated quickly.

The capacity of the three station preventive treatment island unit alone is 5,400 paedodontic patients per year.

Because the provincial fee schedule is based on services given in the typical solo practice, the clinic is able to offer the service at 40 per cent less than the scheduled fees.

## Auxiliaries

Accredited dental assistants have been employed for the past few months and are working side by side with the hygienists performing those tasks for which they are trained.

A laboratory with three skilled technicians serves the needs of the clinic exclusively. The patients and dentists benefit greatly from the presence of these technicians.

## Management and financial considerations

A manager trained in accounting co-ordinates the dental operation. As a lay member, he makes an objective analysis of the efficiency of the group, not only in financial terms but also in terms of staff relationships and effectiveness, patients' needs and servicing and the partners' total interests. Regular business meetings are conducted and call on his resources for guidance. The partners maintain control of all professional questions and ultimately participate in all decisions. Confidence in his management, supervision, however, relieves them from the strain, endured by most practitioners, implicit in business affairs.

All partners are equal shareholders by virtue of investing equal equity. To date, a span of only one to three years has elapsed before new associates are asked to participate as partners. Regardless of their seniority or annual gross revenue production, all partners have an equal monthly drawing and share equally in all company profits. Some would say this robs the dentist of his independence, freedom to work at his own pace and reap the rewards of more money and less leisure or more leisure and less money, as he desires. However, the goals of the group are so set that all partners strike a common ground. All members work from a common base of 46 weeks, four for holidays and two for attendance at conventions and continuing education courses. As they share similar equipment, facilities and personnel, the only factor which could cause

marked difference in income would be fee generation in areas of high cost services. For instance, one dentist may perform more hospital surgery and prosthetic treatment. The others recognize his predilection and ability in these fields and are happy to refer patients. Meanwhile, the others may be performing efficiently in restoring deciduous arches and receiving referrals from him. However, in the group the policy is to attach no significance to the disparities in income which would result from applying the traditional fee schedule to individual income.

A very comprehensive set of agreements binds the group together. These are continually re-examined and, when necessary, altered to reflect more current circumstances.

On retirement or withdrawal from the group, or at time of death, a partner has a very real share value. Unlike most dental practices which have little financial reward to offer at the end of a lifetime of work, there is in the format a very just reward for the person dedicating his life to this profession.

As new concepts of practice emerge in fuller utilization of auxiliaries, new preventive techniques, equipment and office landscaping will be readily available to managed groups. Funds can be made available more easily, planning can be less onerous and more fruitful, and the overall result of great benefit to the community as the clinic keeps abreast of developments which deliver a more effective flow of exemplary dental services.

## Interprofessional relationships

The community contributions that professional members make to the dental faculty, to dental societies and to area activities are large. Consequently, the group has a considerable impact on local affairs.

The association as a group with fellow health professionals has been very rewarding. Appreciation of each other's values and abilities grows as our patients benefit from the total delivery system present in the centre.

While no member of the group is at present a specialist, individual preferences in areas of treatment are taken into account. The further addition of an orthodontist to the team would fill a great need and the community would benefit greatly in time saved. By predilection and ability recognized by their peers, certain dentists do perform better in the fields of periodontics, endodontics and oral surgery. Whenever the services of a specialist are required, referrals are always made.



## Rural service

Recognizing the difficulty of serving people living in the remote areas of Manitoba, the group operates, on a part-time basis, a clinic at Gillam, 600 miles north of Winnipeg. This hydro development site has a fluctuating population of 2,000–3,000. Despite every effort on their part, neither the government, the faculty nor dental organizations could help. After some discussion the townspeople financed a \$12,000 three chair clinic which we man on regular visits through the year. We can disengage one dentist, one hygienist and one chairside assistant from the Assiniboine Clinic for one or two week periods.

The service given at Gillam is no different in delivery or in philosophy from that in the city. In a recent three week period only six permanent teeth were extracted and very little prosthetic treatment performed.

A group often needs a new associate to handle a mounting burden of new patients but it may take one or two years for him to become completely busy. With a team, he could carry the group's practice into other areas where there is a need.

Possibly with the flexibility which group practice allows, the remote area residents' dismal history of inadequate and ill performed dentistry could be replaced with this type of service.

## Conclusion

Many dental publications have warned that dental practices must change in order to cope with the increased demands engendered by private prepayment plans and increased government involve-

ment. Leaders in the dental profession and elsewhere are actively promoting greater utilization of dental services. Faculties are aware that their training programs must be drastically altered to cope with these needs. Traditionally, our profession has been slow to react to change but it is increasingly apparent that vast and exciting new developments are straining to be released.

It is the practitioners' response to these changes and their ability to physically assimilate the new delivery systems which will determine how soon the profession can move along with the mainstream of governments' and citizens' aspirations.

Group practice is surely one answer. Solo practice will still be necessary in some locations, and under some circumstances will continue to be more effective. Generally, however, we will have to make many changes from the traditional practice pattern of today. There is a strong trend to group development and an increasing interest by graduates in this type of practice.

New curriculum changes in our dental schools should allow undergraduates more team training and in-office exposure to the various types of practice.

Federal and provincial grants and loans should be made available on very favourable terms to those establishing community group practices.

This paper was presented at the 7th Biennial Conference on Dental Research and Education, Geneva Park, Orillia, Ont, June 1972.

Dr. Shortill's address is: Assiniboine Dental Group, 633 Lodge Ave, Winnipeg 12.

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## Income from a partnership

Partnership income will continue to be taxed in the hands of the partners, but there are many new features to be considered in determining income at a partnership level, such as capital cost allowance on depreciable property of a partnership, disposal of a partner's interest in a partnership, treatment of 1971 accounts receivable, etc. Members should consult with professional advisers before completing the computation of partnership income, or inquire from the District Taxation Office.

## Provincial taxes on individuals

Each of the 10 provinces imposes its own tax on the income earned by an individual in that province.

With the exception of the province of Quebec, no separate provincial income tax return need be filed by an individual whose income is subject to provincial tax.

## Medical expenses

A taxpayer in computing taxable income may not include in medical expenses any expense paid by or on behalf of the taxpayer or his legal representative for which the taxpayer or such representative has been reimbursed or is entitled to be reimbursed from either a public or a private medical plan. The difference between the actual cost and amount reimbursed may be deducted. Premiums paid by an individual to a non-government medical or hospital care plan will be deductible as medical expenses.



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# Association Dentaire Canadienne

## Régime d'épargne-retraite

Garantie pour votre avenir — dégrèvement d'impôt pour le présent

Docteur:

Nous désirons vous informer que, débutant avec l'année d'imposition de 1972, le montant maximum contribuable au régime d'épargne-retraite de l'Association dentaire canadienne a été élevé de \$2,500 à \$4,000 annuellement (ou 20% du revenu gagné si celui-ci est moindre).

L'exemple ci-dessous vous indique l'épargne approximative qu'un participant qui a contribué le maximum peut obtenir sur l'impôt:

| Revenu net annuel | Contribution déductible | Epargne sur l'impôt annuel |         |                   |
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| \$20,000          | \$4,000                 | \$1,772                    | \$1,715 | \$1,699           |

Vous avez le choix, ou une combinaison, de ces trois fonds distincts:

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Pour demande de renseignements écrire ou téléphoner à:

Canadian Dental Service Plans Inc.  
230 St. George Street, Toronto 5  
(416-925-6341)



La date finale des contributions  
pour une déduction de l'impôt sur le revenu est le 28 février, 1973.



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